

**From the Editor**  
**Player Piano**  
**Tara S Behrend**

I've been thinking about automation and artificial intelligence lately. In the news this week, a marketing company called [Cambridge Analytica](#) is being credited with affecting the outcome of the presidential election, by using AI to target Facebook users based on their personalities and expose them to personalized advertising. Also in the news, swaths of high-skill, professional jobs like [radiology technicians](#) are being replaced by robots. Also, legislators are suggesting that [universities are biased](#) and that professors tell students what to think and that they should be replaced by [Ken Burns documentaries](#). All of this makes me wonder: How long until I-O psychologists are automated out of our jobs? Is it really so crazy to think that day might not be so far away?

In one of Kurt Vonnegut's first novels, *Player Piano* (1953), only two jobs remain in society: engineers (to build and fix the robots) and managers (to manage the engineers). The remaining members of the human race are viewed as "useless." This dystopian view of the future of automation was already on people's minds at that time and seems not just possible but highly probable at this point. Where do we think I-O psychologists will end up in this automated future, and are we okay with that answer?

Consider some of the core skills that I-O psychologists have and what we offer to organizations, universities, and the scientific community:

- **Selection:** [Hiring with algorithms](#) is the way business people describe it. The question is not whether to use algorithms (of course we should; a regression-based approach to predicting performance is always better than using human judgment to do so) but, rather, whether a person needs to weigh in on what the inputs to that algorithm should be. Currently, we still need human I-Os to design and validate assessments and communicate results to decision makers. How long will that be true?
- **Feedback and coaching:** In educational settings, personalized learning and automated tutors are ubiquitous. In organizational settings, productivity apps can track every aspect of your behavior and deliver feedback immediately. Currently, human experts are still needed to evaluate some aspects of the quality of work output. But this seems fairly easy to automate in the future. Artificial therapists have been used with some success to treat PTSD, for example. This issue of *TIP* has an article from **Richard Landers** about the capabilities of natural language processing. This could be the start of iCoach, the automated executive coach.
- **Scientific paper writing:** Although [automatic paper generators](#) have been around for some time, they do not seem to be producing high-quality work quite yet. I can certainly imagine a future, however, in which a correlation matrix and some variable names are given as inputs, and a program finds the "most interesting" results and chooses a "theoretical framing" from a list. This is not how good research is done. But it is how some research currently gets written up, unfortunately. If this can happen, could the program also decide what should be included in the correlation matrix in the first place, based on a huge number of variables too unwieldy for a human? Could it then use natural language processing to find out which of the millions of existing scholarly articles are most relevant to understanding those variables? At some point, would we even need scientific papers any more, given that their primary purpose is to communicate to other humans? Could all that data get uploaded into a vast central database for anyone to access at will when a need arose? So, what is uniquely human about the process of doing research? Humans are still needed to (a) have ideas and (b) give meaning to data. But will we always be better at those things than a well-designed AI program?
- **Teaching:** I'm convinced that some of my colleagues are already robots. It seems likely that automation will continue to advance in this area. After making some lectures for an online course last year, I realized that my university retained the rights to the lectures. Theoretically,

they could continue to offer “my” course without me, and students would get a learning experience that was very similar to the one they got when I was teaching the course myself. [Robot TAs](#) have been tested and found to be indistinguishable in some cases from human TAs. So, why not robot professors?

What is uniquely human about our skill set? What do we learn in graduate school that is truly precious? A feature article from **Tilman Sheets** and **Bharati Belwalkar** in this issue argues for more attention to technology training in graduate school. Should we instead focus on that which *cannot* be automated? Maybe this is hyperbole. After all, claims about Cambridge Analytica were so grossly exaggerated that it seems better to call them [plainly false](#). For all the usual attacks on higher education, human professors won’t be going away any time soon. The feature article from **Nathan Gerard** in this issue offers a historical perspective on how Lewin’s legacy may be relevant to today’s automation-related challenges. A long view may be necessary to discuss these ideas productively. I welcome your ideas—you can email me at [behrend@gwu.edu](mailto:behrend@gwu.edu) or tweet them to me [@TaraBehrend](https://twitter.com/TaraBehrend)—either I, or my robot assistant, will get back to you.

### President’s TIP Column

**Mort McPhail**

Once again time has moved rapidly by, and I find myself preparing the last of my presidential *TIP* columns. A lot has happened over the last few months, and I can’t begin to discuss all of it, but here are a few of the exciting things going on with SIOP.

Most of you know by now that our incoming executive director is on the job. Jeff Hughes began full-time on February 1 and is already busy helping out while learning as much about SIOP as he can. We were pleased to have him attend the Executive Board meeting in January, where he had a chance to interact with the Conference planning groups and observe your Board in action—or at least in enthusiastic debate!

Preparations for the conference are coming along wonderfully, and we’re setting records for pre-registrations. Executive Director Dave Nershi and the AO staff are staying ahead of the curve and making arrangements for additional space to be sure we have accommodations for everyone. By now you have probably heard the news that our Conference Committee (chaired by **Daisy Chang**) was successful in recruiting Dr. Stanley Love, a NASA astronaut, to be the keynote speaker at our Closing Plenary session. Parts of Dr. Love’s responsibilities include working on the planning for human exploration of the moon, asteroids, and Mars. Thanks also to **Steve Kozlowski** for helping bring Dr. Love to our meeting. The Program Committee (chaired by **Zach Horn**) has been working diligently to put together a stellar program while inaugurating new software designed to “make the job easier” (which it will in the long run). I want to offer my very personal thanks to **Tracy Kantrowitz** (Program Committee CiT) for her and her team’s work on the Theme Track, which highlights my emphasis on I-O psychology’s future. All in all, this conference is shaping up to be truly excellent.

There have been a couple of important things happening at APA over the last several weeks. As you may have seen in *Newsbriefs*, APA has hired a new CEO, Arthur C. Evans, Jr., PhD, after a careful and thorough search by a special task force assembled for the purpose that included our own **Rodney Lowman**. Dr. Evans is a clinical psychologist with extensive experience as an administrator having served as commissioner of Philadelphia’s Department of Behavioral Health and Intellectual disAbility

Service and previously as deputy commissioner of the Connecticut Department of Mental Health & Addiction Services. He is also widely published and served as an associate clinical professor in the department of psychiatry at Yale University School of Medicine.

Although a new commission for reviewing and revising the current APA Ethical Standards and Code of Conduct has not yet been named, its formation is expected soon. SIOP has been in communications with the chair of the APA Ethics Committee and current APA President Dr. Antonio Puente to urge them to include an I-O psychologist on the commission when it is formed. We will be submitting nominations for this role when a call is issued.

The Executive Board held its Winter meeting at the Conference hotel in Orlando in January. As you might guess, much of our time was spent reviewing the work being done to ensure the success of our conference in April; however, we addressed a plethora of other issues as well. One of those I think is of particular importance. As president I appointed, and the Board voted to fund a meeting of, a task force to investigate and develop strategies for improving and ensuring robust and reliable research. **Steve Rogelberg** will chair the task force, which has already held a retreat that included both face-to-face discussion and a broad array of teleconference and video conference input from SIOP members who have been concerned about and at the forefront of these issues. As stated in the charge to the task force:

When research is reproducible, replicable, and generalizable (cf. Cook, 2016, NSF 16-137, <https://www.nsf.gov/pubs/2016/nsf16137/nsf16137.jsp>), it provides credible and critical knowledge and supports subsequent research and application. However, the credibility of psychological research is in question, as evidenced most recently by numerous problems identified in the field of social psychology—problems from which I-O psychology is not immune. The problems are tied, in good part, to questionable research practices (QRPs) that undermine the quest for robust and reliable research.

SIOP's focus on these issues was the presidential theme presented by **Jose Cortina** in 2015. The impetus for this Task Force came from a growing concern about these issues and a recent editorial in the *Journal of Business Psychology* reporting a review of the literature related to QRPs (Banks, Rogelberg, Woznyj, Landis, & Rupp, 2016).

The more that I have examined the issues that will be considered by this group, the more I have come to view the issues of questionable research practices, reproducible research, and replication of scientific results as being of paramount concern to I-O psychology as both a science and a profession. I think the risks associated with these issues fall into at least four domains.

First, the issues raise questions of epistemology, that is, how we will determine what we can reasonably think to be accurate factual representations of the actual state of the external world. If we cannot rely on the accuracy and veracity of research that is undertaken to evaluate our theories, we then lack the robust science we need to test them and, thus, devolve to intuition and guesses based on individual observations. Karl Popper's (1935) criterion of demarcation between true science and pseudoscience (and similarly those endeavors that are outside of the realm of science altogether) was that true science generates statements (hypotheses, if you will) that can be subjected to falsification by sound and replicable research. He noted quite specifically that a single study, even if well conceptualized and conducted, seldom suffices to falsify strong statements from well-developed theory. Both the inability to replicate findings and the failure to do so fail to provide strong tests of our theories, which in turn

obviates our ability to revise, refine, or change those theories to better understand phenomena and provide a rational basis for knowledge.

Second, these issues raise questions for the science of I-O psychology. When questions of unsound research practices arise, concomitant questions of the value of the research and justification for funding, whether public or private, also arise. In addition, such research undermines data aggregation such as meta-analyses. Even more insidious may be the extent to which such research sends researchers down unfruitful paths wasting valuable intellectual capital while diverting limited research funds from more meaningful investigations.

Third, the work that is done in science is often inscrutable by persons untrained in our theory and scientific and analytical methods. Thus, the acceptance of “evidence-based” practices very frequently rests on the confidence that non-scientists place in the work that is done in our field. Psychology has historically faced particular concerns about the veracity of claims made or recommendations offered in part because the phenomena we study are complex and frequently not directly observable. This problem, although long true for psychological research, is currently expanding to include other sciences as well, for example, climatology, with similar concerns about veracity. Loss of confidence in the science presents practitioners with substantial concerns. The organizations in which they work or to whom they provide counsel expect the research reported in the literature as well as the research conducted on their behalf to be both reliable and robust. Moreover, when I-O psychologists testify in matters of litigation, they are relying on the research reported in the literature or conducted in their organizations, and courts are relying on that testimony to make substantive decisions under the law.

Fourth, when SIOP undertakes advocacy for the science of I-O psychology, we are seeking acceptance by policy and decision makers that the science that I-O researchers can provide offers a serious and reliable basis on which to predicate important policy decisions. To the extent that poor research practices undermine confidence in the science, the impact that I-O psychology can make will be diminished. Even more concerning, if such practices produce flawed knowledge and conclusions that then become the basis for substantive government policy and action, unintended and deleterious outcomes may arise. I think the work of this Task Force has great significance for SIOP, I-O psychology, and science in general. I do not expect that this one effort will resolve all of the issues or “turn the tide” in favor of robust and reliable research; however, it is my hope that it may lay the ground work for the long and difficult work ahead to ensure that our science and profession remain vital and valuable in providing solutions to make work and workplaces productive and positive.

In addition to this group, I have appointed another task force to attend to a matter of importance to our advocacy efforts. As part of those efforts we have sought improved methods for demonstrating the value and importance of I-O science to issues of national concern. In consultation with our advocacy partners at Lewis-Burke, we have decided to investigate the feasibility of developing an evidence-based metric or metrics of workforce effectiveness to underscore our contributions. The task force will be chaired by **Rob Ployhart** and (from its charter) is charged:

with investigating the feasibility of SIOP developing an index, measure(s), or indicator(s) that will assist public and organizational decision makers in accounting for the value of effectively deployed and managed human capital in making informed policy judgments. The indicator(s) will be predicated on the best available scientific evidence. Included within the scope of such an indicator(s) could be workplace health and safety issues, effective team functioning, valid selection and performance management systems, high-quality training and retraining programs, employee engagement and satisfaction, capable leadership, workforce diversity, organizational justice, employee retention/turnover, appropriate compensation practices, and/or related human resource characteristics. If determined to be feasible, the purpose of the indicator(s) would be to highlight and take into consideration the implications of public policies and decision making for human

beings in the workplace and the resulting contributions to or detractions from macro-economic success.

In February I had the opportunity to attend the 2017 IOOB Conference, which was held at Rice University. The conference coordinators (**Christy Nittrouer, Rachel Trump-Steele, Abby Corrington, Christina Lacerenza, Denise Reyes, Amanda Woods, and Jensine Paoletti**) did an excellent job (prime candidates for serving on our Conference and Program Committees in the future). The program featured examples of research being conducted by graduate students in multiple arenas as well as several invited addresses and roundtable meetings with students by leaders in our field such as **Mikki Hebl, Murray Barrick, Fred Oswald, Jose Cortina, Juan Madera, Kelly Slack, Annette Spychalski, Jay Goodwin, Sophie Romy, and Ed Salas**. It is clear that I-O psychology has a strong and vibrant pipeline of new talent entering our field.

Finally, I want to offer congratulations to **Vicki Vandaveer**, Rodney Lowman, **Ken Pearlman**, and **Joan Brannick** on receiving this year's award for the most outstanding article in Consulting Psychology Journal in 2016. Their article "A Practice Analysis of Coaching Psychology: Toward a Foundational Competency Model" is an empirically based study of the professional practices of psychologists providing developmental coaching services. This work started as a joint collaboration between the Society for Consulting Psychology (APA Division 13) and SIOP.

When I started this journey last spring, I had no way of knowing what a challenging and ultimately fulfilling task I was undertaking. I have gotten to work with many colleagues, some I've known for years and some I'm only just meeting and getting to know. I've had the privilege to be part of SIOP's continuing growth and impact. I look forward to seeing all of you in Orlando as we continue look to the future of I-O psychology and the role that SIOP will play in it.

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**Crash Course in I-O Technology**  
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### A Crash Course in Natural Language Processing

This issue, we'll be exploring another concept core to data science called *natural language processing* (NLP). Many people assume that NLP is a particular analysis, as if you open up a dataset and "apply NLP" to it. But NLP is in reality an entire field of study attempting to explore and understand how humans interpret language and, in turn, how computers can mimic that interpretation. Once a computer "understands" language, you can run a lot of targeted analyses on that language to address

your research questions—or [in the language of data science](#), you can apply a variety of different algorithms to develop insights.

NLP is often confused with closely related concepts *text mining* and *text analytics*. Text analytics refers to any of a wide family of approaches used to derive meaning and develop useful insights from text data. Text mining is a bit more specific and involves any systematic application of algorithms to break down text into meaningful chunks and explore the interrelationships between those chunks. For example, you might count all the times any particular word appears in an open-ended response item and then create a word cloud, with the assumption that words appearing more often are more common concerns among the people responding to that item than words that don't. Text mining and text analytics are thus human processes; they are actions you take.

In contrast, the term *NLP* refers to a variety of algorithms used in both text analytics and text mining. If you go practice text mining, you will employ some number of NLP algorithms. Predictive machine learning algorithms like [those I described previously](#) are most often sorted by the types of data they best analyze (e.g., best algorithms to predict categorical data from continuous data when sample sizes are small). In contrast, algorithms involved in NLP are best sorted by purpose. This is because text analytics projects involve the execution of multiple algorithms in a particular sequence, and each of these algorithms has a different purpose.

As a reminder [from last time](#), an *algorithm* is simply any procedure executable by a computer that takes a specific input, processes it somehow, and produces an output based upon an articulated set of steps that the computer follows. When SPSS takes your dataset (input), iterates over it to compute a slope and intercept (process), and then spits out tables (output), it is executing a *regression algorithm*. That algorithm will be slightly different from the regression algorithm executed in R, because the specific steps taken by the computer will likely differ slightly. Because both ultimately produce the same slope and intercept, the underlying statistical analysis is the same even though the algorithms themselves are different. This is a crucial distinction.

When sorting through the various algorithms utilized in NLP, I find it most useful to distinguish between four major steps: (1) data munging, (2) preprocessing, (3) dataset generation, and (4) analysis, which I summarize in Table 1. I'll cover each of these steps in turn.

Table 1  
*Steps Taken (and Types of Algorithms) Involved in Natural Language Processing.*

Step	Description
1. Data wrangling	Acquiring and “cleaning” data from relevant sources so that NLP algorithms can be applied.
2. Preprocessing	Altering the clean text so that it contains only linguistically and analytically meaningful units.
3. Dataset generation	Converting the clean text into a dataset that can be analyzed.
4. Analysis	Applying algorithms to

## Data Wrangling

*Data wrangling*, also called *data munging*, refers to the systematic cleaning and combining of data sources into something that can be understood by the algorithms you want to apply to it next. In the case of NLP, the ultimate goal of data wrangling is a dataset containing both text and other variables of interest associated with that text. Data wrangling should be a familiar problem to any I-O practitioner or any academic who has worked with people management software. If you've ever tried to get turnover data from Kronos, performance data from Peoplesoft, and survey data you collected in Qualtrics all into a single file that R or SPSS can read, you have been data wrangling already.

Commonly, data wrangling involving text starts with some sort of interesting text out in the wild, wherever that text happens to be located, and ends with a dataset containing a column of plain text responses and associated variables. In practice, it is best to design data collection efforts to *prevent* excessive data wrangling if at all possible. For example, text responses should be stored in CSV files, not in PDFs. If a dataset that looks like this can be created by the software that collects it, it should be. This sort of foresight and planning will minimize headaches (and therefore time costs) later.

NLP algorithms are designed to apply to a corpus, which is essentially a database containing all of the raw text you're trying to analyze plus any associated meta-data (i.e., those other variables I described earlier). That means this particular data format is the end result of data wrangling. For example, if you were looking at open-ended survey responses, you might include the respondent's identity, or their department, or any other such information in the corpus alongside the response itself. Most importantly, each corpus contains all of the text data you later want to analyze as a single unit. For I-Os, this often means all responses to a single open-ended survey question.

Generating a corpus is generally quite easy because whatever program or R libraries you will eventually apply NLP to will create it for you as long as you can clearly specify where the texts you're interested in are located. For example, if you plan to use the NLP algorithms contained in the R library *tm*, one line of code can convert a vector of text into a corpus:

```
corpusVar = VCorpus(VectorSource(dataset$textVar))
```

From an I-O perspective, this may seem confusing. If it's just the same text I had before, why does it need to be a "corpus"? Why can't I just run NLP analyses on a variable containing text? The most straightforward answer is that NLP algorithms expect a certain data type and that data type is "corpus." In simple NLP, there is no functional difference between corpora and variables containing text. In more advanced NLP, this may not be true; meta-data like sentiment, author, or any other piece of information might be added to the corpus and associated with each text, either algorithmically or by hand (this process is called *annotation* and creates an *annotated corpus*). In cutting-edge NLP, these annotations may even include information like sentence structure, grammar, and other properties of the text. Long ago, before computer processing of text was common, corpora used by linguists would often be physical collections of documents, so a lot of the terminology and thinking about corpora comes from that era.

## Preprocessing

Once you have a corpus to work with, you can apply preprocessing algorithms. The precise approach to take during preprocessing is different depending upon the NLP approach you'll ultimately be taking, so I'll briefly review the two major types.

First, the most common approach to NLP involves “bag of words representation.” What this means is that all linguistic information containing in a sentence except for the words themselves is thrown out. Word order? Useless. Grammar? Who cares! Thus, preprocessing with a bag of words representation involves altering the corpus such that every word it contains is *meaningful*. The precise meaning of “meaningful” in this context is left to the NLP practitioner. I'll describe this in more detail in a few paragraphs.

Second, the less common but potentially far more powerful approach to NLP involves “semantic representation.” In this approach, no information is thrown out. Tenses, word order, grammar, synonyms, phrases, clauses, and so on all are considered important pieces of the NLP puzzle.

So what leads people to choose a bag of words or semantic representation? The answer is simple: It's a balance between processing and statistical power with explanatory power. In terms of processing, NLP is one of the most computationally intensive types of analysis you are likely to use because the interpretation of language is incredibly complex. If you're literate and read a lot, you likely take for granted just how complex of a skill reading actually is. Our brains make reading seem easy, but remember that you've been feeding “training datasets” to your brain for decades; R and Python do not have that advantage. If you want to teach a naïve computer how to read, you'll need to do it from scratch.

Imagine what this might involve in English. For any given sentence, there are a lot of things to which to pay attention: individual words, their denotations, and their connotations; multipart words that have unique meanings beyond their component parts, like “industrial and organizational psychology”; tenses and conjugations; subject-verb agreement; phrases and clauses, along with the conjunction words, prepositions, and punctuation that combine and organize them. This list could continue for a full page, and each of these concepts would itself require lengthy and complex explanation.

Whatever they end up looking like, once we have all the component parts of some text laid out, what do we do with them? The one thing that computers can do more effectively than humans is raw, systematic, exhaustive processing, so the most straightforward approach is to create one variable for each concept. The use of “clean” in a sentence becomes a variable. The use of “cleaned” is another. The use of “cleaner” is a third. In the paragraph before this one, I used 84 words, 20 bits of punctuation, 9 capital letters, 8 verbs in various forms, 5 sentence fragments, and so on. So now, the computer just needs to see all of that content replicated numerous times in different contexts—books, articles, websites, speech, and so on—until it has a sufficiently large sample to start trying to infer meaning.

As you've probably caught on, the processing time required to do this and the statistical power required for it to be replicable would simply be incredible. This is a core reason that we don't have true artificial intelligence yet. It's just not computationally feasible with current technology. This is not to say that semantic representation is impossibly far in the future. Researchers are constantly developing new ways to simplify semantic representation of text in order to make it more within the realm of the possible given modern technology. Remember that about 55 years ago, humanity managed to get to the moon with far less technology than is currently used to run Internet-connected light bulbs. New



algorithms are being developed to accomplish NLP with semantic representation using much less processing power than currently required—but we’ve still got a long way to go.

In fact, most people interested in semantic representation these days take a shortcut in teaching computers how to read by relying on commercial algorithms developed by companies that have thrown an incredible amount of resources at the problem already. These algorithms already know how to read, at least as well as any computer currently can. One of the most common that you might have heard about before is [IBM Watson](#), but similar products are available from [Microsoft](#), [Google](#), and [Facebook](#). If you want to take advantage of these systems (often marketed as “AI,” but remember my warning about that earlier), you typically need to pay a fee based upon the amount of processing time you need. These systems also have the processing power to implement a more complex type of machine learning called *deep learning*, which involves the application of a concept called *neural networks*. In neural network modeling, variables are defined recursively, such that information discovered later in dataset exploration can be used to revise relationships discovered earlier, and individual nodes in the network can have multiple, complex relationships with other nodes. For example, when the algorithm encounters the word “psychology” the first time, it has relatively little information about it. When it encounters it the hundredth time, it will have likely figured out that psychology is a noun and is used in similar contexts to other “ology” words. When it encounters it the ten thousandth time, it may even be able to generate its own sentences using the word psychology in ways like humans would.

As a result of the additional complexity and cost, virtually everyone casually applying NLP algorithms these days uses a bag of words representation in which each word (or group of words) that is viewed as linguistically and analytically meaningful essentially becomes a count (0 for absent, 1+ for present) variable in a dataset. In the previous paragraph, about 257 distinct words were used, so if you were interested in creating a dataset based upon this article using a bag of words representation, that paragraph would contribute 257 variables, each of which would contain a count (e.g., “you” would have value 4). As more paragraphs were added to the dataset, so would more variables, adding a lot of zeros each time.

Given this approach, the goal of preprocessing before applying a bag-of-words model is to ensure that each variable is itself meaningful (a content validity question) and also in comparison to other variables (a discriminant validity question). So what does this involve specifically? Here are some commonly applied bag-of-words preprocessing algorithms:

- Changing all words to lower case so that words like “Table” and “table” end up being considered the same variable.
- Changing abbreviations to their full words, so that words like “Mr.” and “Mister” are considered the same.
- Changing contractions to their original versions, so that a word like “it’s” is remade into “it is.”
- Stemming words, so that words like “contacted,” “contacts”, and “contacting” are considered the same (in a stemmed corpus, these would all become “contact.”)
- Removing all numbers and punctuation.
- Removing functional words (sometimes called stop words) that are generally not considered linguistically meaningful, like “what,” “his,” “they’ll,” and forms of the verb *to be*. See Figure 1.
- Removing any words that are uniquely problematic, such as hashtags from Twitter data.

```

[1] "i"      "me"      "my"      "myself"  "we"      "our"      "ours"
[8] "ourselves" "you"     "your"    "yours"   "yourself" "yourselves" "he"
[15] "him"      "his"     "himself" "she"     "her"      "hers"      "herself"
[22] "it"       "its"     "itself"  "they"    "them"     "their"     "theirs"
[29] "themselves" "what"    "which"   "who"     "whom"     "this"      "that"
[36] "these"    "those"   "am"      "is"      "are"      "was"       "were"
[43] "be"       "been"    "being"   "have"    "has"      "had"       "having"
[50] "do"       "does"    "did"     "doing"   "would"    "should"    "could"
[57] "ought"    "i'm"     "you're"  "he's"    "she's"    "it's"      "we're"
[64] "they're"  "i've"    "you've"  "we've"   "they've"  "i'd"       "you'd"
[71] "he'd"     "she'd"   "we'd"    "they'd"  "i'll"     "you'll"    "he'll"
[78] "she'll"   "we'll"   "they'll" "isn't"   "aren't"   "wasn't"    "weren't"
[85] "hasn't"   "haven't" "hadn't"  "doesn't" "don't"    "didn't"    "won't"
[92] "wouldn't" "shan't"  "shouldn't" "can't"   "cannot"   "couldn't"  "mustn't"
[99] "let's"    "that's"  "who's"   "what's"  "here's"   "there's"   "when's"
[106] "where's"  "why's"   "how's"   "a"       "an"       "the"       "and"
[113] "but"      "if"      "or"      "because" "as"       "until"     "while"
[120] "of"       "at"      "by"      "for"     "with"     "about"     "against"
[127] "between"  "into"    "through" "during"  "before"   "after"     "above"
[134] "below"    "to"      "from"    "up"      "down"     "in"        "out"
[141] "on"       "off"     "over"    "under"   "again"    "further"   "then"
[148] "once"     "here"    "there"   "when"    "where"    "why"       "how"
[155] "all"      "any"     "both"    "each"    "few"      "more"      "most"
[162] "other"    "some"    "such"    "no"      "nor"      "not"       "only"
[169] "own"      "same"    "so"      "than"    "too"      "very"
> |

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Figure 1. Default stop words in R detected by the *tm* package.

Importantly, there is no single set of preprocessing algorithms that is applicable to all situations. For example, if you were applying a bag of words approach to tweets, you might want to keep or exclude hashtags, depending upon your NLP goals. It is up to the NLP practitioner to decide what will be meaningful or not for any particular application. One of my interviewees for this column described this as more of an “engineering” approach than a “scientific” one, which I found a very helpful way to think about it. Most decisions made in NLP are made on the spot to solve specific problems, not because a well-validated and complete prior literature suggests an ideal course of action. In many cases, NLP practitioners will fiddle with their preprocessing algorithms until they end up with the result they want, and this not frowned upon in the slightest within the data science community.

## Dataset Generation

From here forward, I’m going to ignore semantic representations and focus on bag of words models. As I described earlier, semantic representation adds a mind-boggling degree of complexity. What that means in practice is that if you’re trying NLP yourself without the help of a computer scientist, you’re probably going to stick to bag of words. So that’s the example I’m going to provide you!

In a bag of words approach, once preprocessing is complete, it’s time to actually create the dataset itself. This process is called *tokenization*. In practice, it involves the assignment of identifier numbers to each unique word contained within a corpus. Then, the tokenization algorithm will count how many times each word appears in each text, repeating this process for each identifier. Finally, it returns a document-term matrix (DTM), which is essentially a dataset with documents as cases and words as variables.

For example, the following three sentences create the DTM that appears in Table 2: (1) The fox chases the hen. (2) The hen lays an egg. (3) The fox eats the egg.

Table 2  
A Simple Document-Term Matrix.

Document	the	fox	chases	hen	lays	an	egg	eats
1	2	1	1	1	0	0	0	0
2	1	0	0	1	1	1	1	0
3	2	1	0	0	0	0	1	1

These datasets tend to have high variable-to-case ratios, although this problem gets better when “big data” is involved. For example, a 500-case dataset of open-ended responses could easily identify 50,000 unique words used (and therefore variables).

Importantly, up to this point, I’ve only been describing individual words becoming variables. For example, “I love industrial and organizational psychology” would become 6 variables. This is called a unigram tokenization. However, to capture additional nuance, NLP practitioners might add two-word phrases (bigrams), three-word phrases (trigrams), up to any size  $n$  ( $n$ -grams). Tokenizers typically do this by examining the text for any two-word or three-word phrase that appears more than once in the dataset. So for example, if I applied a four-gram tokenizer to the articles in *TIP*, “industrial and organizational psychology” would likely show up as a variable in my dataset. This is often viewed as a small step toward semantic representation still achievable within the processing requirements of NLP using a bag of words representation.

## Analysis

Finally, we can actually learn something from this text! Analysis of DTMs can be conducted with two broad families of techniques: visualization or predictive machine learning. You have probably already seen visualization of text data in the form of word clouds or dendrograms. These are just what they appear to be: visual representations of word (or  $n$ -gram) frequency.

If you’re taking a predictive machine learning approach, there are many more options. One common approach is sentiment analysis, which involves the assignment of sentiment values to each term in the DTM and the calculation of an overall sentiment score for each document. In most cases, this is done by cross-referencing a previous data collection effort where sentiment of individual words was determined; these datasets are called *lexica* (or *lexical corpora*). For example, it’s not uncommon to take all the most common words in a DTM and ask workers on Amazon Mechanical Turk to rate them for sentiment with questions like, “Is this word positive, neutral, or negative?” Once you have mean ratings of sentiment from MTurk workers for each word in your dataset, a mean sentiment level for each document can be calculated. There are also freely available lexica, such as [this commonly used 6,800-word one](#), although words could be in your corpus that don’t appear in your lexicon. Sentiment scores have been used to predict a wide variety of outcomes, such as [stock values](#) and [box office performance of films](#).

Another common approach is to use the DTM itself to predict other variables directly. The key difference between this and sentiment analysis is that sentiment analysis predicts outcomes based upon the affective content of the words (loosely defined) whereas direct prediction is from word (or  $n$ -gram) frequencies. Commonly this is done with naïve Bayes classifiers for categorical outcomes or ridge regression for continuous ones. In both cases, it’s important to use  $n$ -fold cross validation, which takes multiple random subsamples of documents to build the predictive model and then tests each of those models on the remaining nonsampled data. Otherwise, overfitting is exceptionally common (as you’d expect in any analysis where the number of variables exceeds the number of cases by an order of

magnitude or more!). For more on predictive machine learning algorithms, including ones that can be used in NLP contexts, I recommend consulting Putka, Beatty, and Reeder (in press).

What often frustrates I-O psychologists that I talked to about NLP is that these analyses generally don't tell you what the predictive algorithm was picking up on to achieve its success rate. You don't get a list of beta weights; instead, you create a brand new algorithm that you can load new data into and which will spit out predicted values on the basis of your original analysis. In many ways, it's like using a regression formula to predict  $y'$  without ever knowing what specific terms were calculated for the intercept and slopes. Thus, NLP is not terribly useful as a theory-development technique at least as it current exists; you may never actually know *why* it worked even if it worked spectacularly well. Some researchers have tried to address this by applying an intermediate step of unsupervised machine learning to extract meaningful word clusters (sometimes called *thematic extraction*; for an example of this, see Campion, Campion, Campion & Reider, 2016), but this does not really solve the problem; it simply creates word clusters that are also difficult to interpret.

### Let's See It in Action

In my [Crash Course on Machine Learning](#), I didn't provide a demonstration video in R for several reasons, but most importantly because there was not a lot to demonstrate, just a handful of commands with relatively straightforward interpretations. In NLP, the issues you face become a lot more complicated, and there are many more steps involved. So to address that, I'm going to provide you with a high-level overview here in *TIP* but leave the details and the *demonstration* part to the video. So if you want to see NLP in action, I'd recommend watching this video immediately after reading this section.

<https://player.vimeo.com/video/204413950>

In this practical exploration of NLP, I'm going to step you through a miniaturized version of an NLP project, much like the demonstration I would do when teaching data science to I-O PhD students who don't know much programming (yet). Specifically, we're going to take a dataset that contains a binary variable (self-reported gender) that we want to predict from another variable that contains only text.

As I described earlier, NLP involves four steps. In Step 1, data wrangling, we grab a dataset (in this case, from a tab-delimited dataset which you can download [here](#)) and create a corpus using the *tm* library:

```
# Grab data from tab-delimited text file
dataset <- read.table("data.tab.txt",
                     sep="\t",
                     quote="\"",
                     header=TRUE,
                     stringsAsFactors=FALSE)

# Call libraries we'll need
library(tm)
library(qdap)

# Create base corpus
myVectorSource <- VectorSource(dataset$Email)
myCorpus <- VCorpus(myVectorSource)
```

In Step 2, preprocessing, we apply algorithms to the text data in the corpus to ensure our bag of words is meaningful. In this case, I replace abbreviations with their nonabbreviated equivalents, replace contractions the same way, remove all numbers, remove all punctuation, change everything to lower case, remove all functional words, and then stem all words that can be stemmed. Any line that doesn't call *content\_transformer()* is from *tm*, whereas all the others (except *tolower*, which is a core R function) are from the *qdap* package.

```
# Pre-processing
myCorpus <- tm_map(myCorpus, content_transformer(replace_abbreviation))
myCorpus <- tm_map(myCorpus, content_transformer(replace_contraction))
myCorpus <- tm_map(myCorpus, removeNumbers)
myCorpus <- tm_map(myCorpus, removePunctuation)
myCorpus <- tm_map(myCorpus, content_transformer(tolower))
myCorpus <- tm_map(myCorpus, removeWords, stopwords("en"))
myCorpus <- tm_map(myCorpus, stripWhitespace)
myCorpus <- tm_map(myCorpus, content_transformer(PlainTextDocument))
myCorpus <- tm_map(myCorpus, stemDocument, language="english")
```

In Step 3, dataset generation, we tokenize the resulting dataset with unigrams. Compared the all the work we just did, this is easy.

```
# Create document-term matrix (DTM)
DTM <- DocumentTermMatrix(myCorpus)
```

In Step 4, we finally get to analyze the resulting dataset. First, we do some basic visualization by looking at a list of the most common words.

```
# Some basic visualization
DTM.matrix <- as.matrix(DTM)
freq <- colSums(DTM.matrix)
sortfreq <- sort(freq, decreasing = TRUE)
```

We can also create a word cloud quite easily.

```
library(wordcloud)
wordcloud(DTM$dimnames$Terms,
  freq,
  min.freq=10,
  max.words=100,
  random.order=FALSE)
```

Second, we apply a predictive machine learning algorithm to develop a new algorithm that will predict the variable we wanted to predict. This involves a little more data wrangling, because we need to recombine the original criterion with our new NLP dataset. I'll be using the caret package, [which I wrote about last issue](#).

```
# Create a dataset with the DTM
dtm.matrix <- as.matrix(DTM)
```

```
sml_dataset <- data.frame(gender=dataset[,2], dtm.matrix)
sml_dataset[1:10, 1:15]

# Some machine learning
library(caret)
gender_model <- train(gender ~ .,
                      data = sml_dataset,
                      method="nb")
```

We could then use this model to make new predictions on new text in another dataset. Importantly, this example uses a very small dataset (much too small to trust!) and doesn't apply n-fold cross-validation, both of which would need to be implemented to have any faith in the resulting predictions.

### So Who Should Learn Natural Language Processing?

As I mentioned earlier, semantic processing is extraordinarily complicated and realistically requires that you purchase processing time on commercial NLP platforms. So if you're just starting out, *stick to bag of words*. It is more than enough for most applications—think about the difference between classical test theory and item response theory (IRT). Sure, IRT gives you a lot more information about your tests and their questions and therefore capabilities like adaptive testing, but it also imposes a lot more restrictions and requirements on the type of data with which you start. Just like you wouldn't apply IRT when  $n = 40$ , you do not want to apply semantic processing without access to the billion-plus-case datasets that provide a starting point for your own analyses. Classical test theory works just fine for most common applications of psychometrics, as does bag of words for most common applications of NLP.

So that means the real questions are “who should learn bag of words NLP?” and “who should hire a computer scientist to do semantic NLP?” I'll tackle these one at a time.

Bag of words NLP is useful if you ever try to interpret text data. Too often, we do this holistically. For example, we download a gigantic list of comments and just *read them*, assuming our brains are sophisticated enough to extract key concepts and ideas from a brief perusal. But as anyone who's done content analysis before knows, it's very easy to fool yourself when trying to interpret text data. Basic NLP using a bag of words representation is an excellent toolkit to try to prevent that from happening. Don't drop holistic interpretation entirely, because bag of words misses nuance, sometimes completely. But bag of words does provide an alternative perspective on that holistic understanding. So in practice, I'd recommend reading your comments, applying NLP, and seeing if the interpretations you come at from both perspectives agree. If not, you have some more analysis to do. If so, you can be more confident in what you've discovered.

In I-O psychology, people who've dabbled in NLP have generally stuck to bag of words. For example, Rudolph and Zacher (2015) were interested in differences in affect toward different generations and the impact of this on workplace relationships, so in pursuit of this, one part of their analysis involved collecting a random sample of Twitter postings and subjecting those posts to sentiment analysis. In that, they found that tweets about Millennials generally were the most positive, followed by Baby Boomers, followed by Generation X. Campion et al. (2016) utilized a bag of words model when analyzing text collected during selection as implemented in the text modeling tools available within SPSS, allowing the software make most of the preprocessing and theme extraction decisions on their behalf.

In contrast to these situations, semantic representation is most useful when you really need to get into the nitty-gritty details of language in order to predict the phenomena you're interested in predicting. This is strongly reminiscent of the bandwidth-fidelity dilemma (Ones & Viswesvaran, 1996) in that narrow criteria are best with narrow predictors and broad criteria with broad predictors. However, the goalposts have moved a bit. To be "narrow" at the level of "verb conjugation matters," you need to be facing a problem that requires an incredible level of specificity.

In I-O, I only found one person, Matt Barney, founder and CEO of LeaderAmp, that has been applying semantic processing to solving I-O problems, and frankly, I was astounded by what he said. Specifically, his company is developing a technology to have people speak into a voice-to-text system (like Apple's Siri) and get immediate feedback on how persuasive they are being. Such a system converts the words people speak into text then applies NLP to that text all in real-time in order to provide immediate feedback. That opens the door to phenomenally powerful assessment systems, which in turn enables incredible automated selection and training systems that I imagine most I-Os haven't even dreamed of before. Only semantic representation enables this level of specificity, and this is the likely future of many I-O processes. Even so, the number of years or decades before we're realistically able to do that at scale is still anyone's guess.

## To Learn More

I hope by now, you're clear on at least one point. If you want to learn NLP, start with bag of words representations and build from there. Bag of words NLP is well within the grasp of any I-O with even a basic understanding of R or Python, and it's something you can learn the basics of in just a few hours. Assuming [you already know R](#), I suggest [DataCamp's Text Mining course](#), which walks you through everything required quite quickly. Even if you want to tackle semantic representations, bag of words is the foundation you'll build that upon.

With basic bag of words down, you can start exploring additional packages in R. [Here's a list](#). I suggest starting with n-grams (RWeka, tokenizers), more complex stemming (SnowballC), lexical diversity (koRpus), sentiment (tidytext, textir) moving to basic semantic evaluations within bag of words (lsa, RTextTools) and topic modeling (text2vec).

When you've got all that down and are ready for the full force of modern semantic representation, which often goes by the names *deep learning* or *neural networks NLP*, a few people suggested Stanford's course. A simpler version of this course [has previously existed in MOOC form](#), but if you can't find it now, you can view all the lectures from the Stanford course itself as [YouTube videos](#). Just be aware that this is only a path I'd recommend taking if you really want to deeply, fundamentally understand how deep learning works. Be ready for a lot of calculus.

If you don't want to get into that, I suggest learning by doing. Microsoft has a few convenient R packages for accessing their deep learning platform (mcswebbm4r or the more useful mscstexta4r), which I'd recommend exploring in combination with their [tutorials](#), although you'll need to convert instructions from other languages into R commands. If you're willing to abandon R for Python, you'll find your learning options open up considerably.

I'll end with an important point. Most of the tutorials you'll find are designed for people seeking to use NLP *in web applications*. So there is often a lot of material within NLP courses you'll come across that, as an I-O, is completely irrelevant to you. You don't need to consult a cloud-based API in real-time as

people use your website in order to create customized content; you have a stable dataset that you want information about *right now*. Keep that in mind as you look for learning material.

## Conclusion

That's it for the fourth edition of *Crash Course*! If you have any questions, suggestions, or recommendations about NLP or *Crash Course*, I'd love to hear from you ([rnlanders@odu.edu](mailto:rnlanders@odu.edu); @rnlanders).

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## The I-Opener: What If You Sent Videos Out Before (or Instead of) Meetings?

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Meetings are important in your life. They take up a bunch of time, some are great and others are agonizing, but you need to have them to get work done. Search your feelings; you know it to be true.<sup>1</sup> Both the popular press (see for a discussion Kello, 2015) and peer-reviewed outlets have a great deal of helpful meeting-optimization advice (discussed briefly below), with some caveats for cross-cultural differences (Gerpott & Lehmann-Willenbrock, 2015; Köhler & Götz, 2015; see also van Erde & Buengeler, 2015). To the best of our knowledge, however, these recommendations are silent on the topic of using videos—not synchronous video conferencing but prerecorded videos—in the context of meetings. Silent—no pros, no cons, no evidence, no research questions. Let's take a look at some of the existing recommendations and see how we can slot this technology into them, shall we?

## The Recommendations (sans Video)

As mentioned above, there are a bunch of ways to approach the question of “how should I meeting?”, but we'll leave that to a different outlet (see for instance Allen, Lehmann-Willenbrock, & Rogelberg, 2015). Given the diversity of categories of design characteristics that have an impact on perceived meeting quality (Cohen, Rogelberg, Allen, & Luong, 2011), there doesn't appear to be a silver bullet, but



we think that it's fair to say that the following are, at least by some sources, among those characteristics recommended<sup>2</sup>:

- Have an agenda<sup>3</sup> (Cohen et al., 2011; Leach, Rogelberg, Warr, & Burnfield, 2009), preferably formal and distributed in advance (Cohen et al., 2011).
- (Not really a recommendation, but) Meetings can be used to share information (e.g., project and/or individual updates; see Scott, Allen, Rogelberg, & Kello, 2015).
- Structure meetings of virtual teams carefully, particularly by working to build trust and familiarity between team members before scattering to the four winds (and preferably have that first effort conducted in person, for the sake of richness of contact; see, e.g., Karis, Wildman, & Mané, 2016; see also Yoerger Francis, & Allen, 2015).
- Start and end punctually (Cohen et al., 2011; Leach et al., 2009).
- Only hold a meeting when a meeting is the right thing to hold (Kello, 2015).

### **Why Video? We Have Plenty of Solutions Already**

The reader may rightly ask why we're making noise about *video* in meetings if there are plenty of helpful recommendations already. Well, at least as of a couple of years ago and despite the availability of these recommendations, meetings are still broken (Geimer, Leach, DeSimone, Rogelberg, & Warr, 2015); meetings are perceived as ineffective at alarmingly high rates.

Okay, says the reader: So we need to institute those recommendations more effectively, not to come up with new recommendations. Perhaps a fair critique, but give us the rest of this article to try to change your mind and then you do you, please. Besides, there are other criteria than just team and organizational effectiveness (Allen, Lehmann-Willenbrock, & Landowski, 2014; Cohen et al., 2011; Geimer et al., 2015; Kauffeld & Lehmann-Willenbrock, 2012; Leach et al., 2009) and employee attitudes (Allen & Rogelberg, 2013; Allen et al., 2012) such as getting employees moving to avoid death/disease (Buckley et al., 2015) and to avoid mental-health concerns (Teychenne, Costigan, & Parker, 2015); the solutions that we discuss may serve these other criteria better than any existing meeting recommendations.<sup>4</sup>

Okay, now it is speculation time.

### **First, the "Flip Meeting"**

You have heard, we suspect, of using videos for *instructional* purposes<sup>5</sup>—employment training to classrooms to life-long learning, conveyed via everything from VHS to Internet. What you may not have considered (and what we entreat you to consider now) is using video strategically to improve your *meetings*. Here, a demonstration:

[Embed <https://www.youtube.com/watch?v=O8gcdnTGme4>]

Now that was cut together and voiced over and pretty snazzy looking, right? But the video within the video—the presentation—was easy to produce. The first author maintains [a website](#) in collaboration with Dr. Lodge McCammon (known also for his work in K-20+ educational environments; see [this](#) and have fun) that explains this process, but know that (a) there are several free ways (e.g., via smartphone or something like [this](#)) to produce a simple and professional-looking video with practically no learning curve and (b) this isn't something that is going to take you a ton of time to produce. Create the presentation, film the presentation, publish, and distribute. Done.

A brief aside for the biggest struggle that many seem to experience with video: Yes, you're going to hear your own recorded voice and, optionally, see your own recorded image. For some, this may be an uncomfortable experience. But this'll be an opportunity for us all to move on from the nervous laughter and self-deprecatory debasements and to use the opportunity to evaluate our communication skills, changing what we can and accepting the rest. In other words, let's focus on the point of the meeting—getting work done—and not whether the lighting was flattering.

Yes, there are times where this will consume more person hours than it saves; a one-on-one meeting with a 30-second (video) update followed by 30 minutes of discussion, for instance, is not the best showcase for this approach. If one ignores the potential for reflecting on presentation skills and some of the other points made below, we are left with an empirical question of the break-even point for number of attendees and length of in-person presentation (taking into account the learning costs associated with giving a presentation in this new and potentially unfamiliar format)—somebody go answer that question.

### **How Could Video Be Used to Replace the Agenda and/or In-Meeting Presentations?**

A video presentation can itself become the agenda. When you make the decision to create a video, you have to first determine what, exactly, you want to share with your colleagues. Typically, the content will be something on which you would like to solicit feedback or ideas/proposals/findings that you want to discuss. In essence, the process of creating the video becomes your agenda planning: You decide what the content will be and you determine how the meeting time will be used (e.g., discussion, feedback, collaboration). Sending the video ahead of time can set the agenda with others; they come knowing what to expect. Watch this video before X date. Think about the information in the video. Come prepared to discuss/provide feedback/brainstorm.

Now, there is the pesky challenge of using this method when you are not the only one presenting and others in your team are less inclined to try out the flip meeting. That can certainly put a damper on using a video to replace the agenda. The recommendation here would be to take the initiative to create an agenda. Step up and indicate to others that you plan to send a video as a “pre-read,” that you need X number of minutes for collaboration or discussion, and that you respectfully request that they provide you with an outline of what they plan to present and how much time they need. The last (and presumably the hardest) part? Hold them to it.

### **How Could Video Support Virtual-Team Meetings?**

Those of us who have virtual members of our team (or perhaps are on a completely virtual team) are not always fortunate enough to have video conferencing for every meeting. And I'm sure nearly everyone can appreciate the struggle of the conference call.<sup>6</sup> A flip meeting can work just as well with virtual teams as it does with in-person teams, as virtual-team meetings can suffer from the same challenges (e.g., no agenda, starting/ending on time). Beyond that, video presentations may help to build familiarity and trust among virtual colleagues<sup>7</sup> (remember that recommended characteristics mentioned above?) as team members would get to see each other more regularly (in the video presentations).

### **How Could Video Obviate Punctuality Concerns?**

Imagine. You're presenting the preliminary findings from your project. One of your colleagues walks in about 10 minutes late. Within the first 5 minutes of being there, that person interrupts to ask a question that had already been answered in your presentation. Now you have to repeat yourself, taking up precious minutes, potentially resulting in the meeting not ending on time. Sending a video prior to the meeting means that everyone has access to the presentation and now your meeting is meant for collaboration or feedback. If someone shows up late, that person will be up to speed on the content and, ideally, can jump quickly into the conversation. Granted this could just turn the problem of catching a late arriver up on presentation content to one of catching the individual up on the discussion that had occurred. But wait, perhaps we're not thinking expansively enough.

### **How Could Video Be Used to Replace the Entire Meeting?**

Remember how "only hold a meeting when it's necessary" was on the meeting-improvement list? In creating a video presentation, which helps us think through that meeting agenda, we may realize that, you know what, the purpose of this meeting is just to update others. When the whole point of the meeting is to give others line of sight to your progress on a project or just keep them informed of what you've accomplished this week (or past 2 weeks, or month, or however frequently your team likes to meet for project updates), in those cases, the video presentation has accomplished exactly what you would have done in person and likely more concisely. Sure, there might be a person or two who have questions or feedback, but they can easily email you in response to the video presentation. No need to take up everyone's time with a scheduled meeting: calendar disruption, travel time, task-switching costs.

### **So What?**

What we have attempted to do is, concisely, this:

1. Point out that meetings are in need of some improvement.
2. Point out that, among the recommendations for improving meetings, there is no mention (of which we are aware) of using prerecorded videos.
3. Show how prerecorded videos could be used to work in alignment with some meeting-best-practice advice, in part by providing practical resources.

We now look to you to consider these thoughts. Have we made a sufficient case for video for you to at least consider it before discounting it outright? Have we convinced you that research on the topic would be worthwhile and potentially valuable? Will you try to use it in the process of enacting these best-practice recommendations?

### **Notes**

<sup>1</sup> If you're not keen on this personal appeal, very well; the same statements can be substantiated by (sometimes but not always entirely satisfying) empirical work (Allen et al., 2012; Cohen et al., 2011; Kauffeld & Lehmann-Willenbrock, 2012; Leach et al., 2009; Rogelberg, Leach, Warr, & Burnfield, 2006). Also HAHA STAR WARS #TOPICAL

<sup>2</sup> There are many more; we're deliberately leaving off a good number of these for brevity and to focus on video-relevant characteristics. Go read the original sources.

<sup>3</sup> An important caveat here is that we lack widely held causal explanations for many of these design characteristics – why are agendas beneficial, for instance?

- <sup>4</sup> You'll note by the end of this article that if a meeting occurs at all it can largely occur outside of the confines of a conference room – so get up and move! See <http://flipthemeeting.com/wp-content/uploads/2015/04/WalkTalk-Research.pdf> and more generally <http://flipthemeeting.com/about/> for more information on that topic.
- <sup>5</sup> That's "teaching functions", not "toothed whales that are educators" – you're thinking "instructional porpoises". Honest mistake.
- <sup>6</sup> [https://www.youtube.com/watch?v=DYu\\_bGbZiiQ](https://www.youtube.com/watch?v=DYu_bGbZiiQ)
- <sup>7</sup> There is evidence to suggest that having the opportunity to see a person, even if it's a static image (like a photograph), can help build trust (e.g., Riegelsberger, 2002; Zheng, Veinott, Bos, Olson, & Olson, 2002)

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### About the Award: Hogan Award for Personality and Work Performance

Not only have Joyce and Robert Hogan independently advanced the science and practice of workplace personality, but the Hogan's joint contributions to the field are, to say the least, quite impressive. As such, the Hogan Personality Award was established in honor of the Hogans' collective body of work and, more specifically, to recognize research advancing the understanding of personality as it relates to work performance.

Since its inception in 2012, five research teams have earned the honor and distinction of the Hogan Award, the first four of which are briefly described below:

1. 2012: **Brian S. Connelly** and **Deniz M. Ones** for their paper, "An Other Perspective on Personality: Meta-Analytic Integration of Observers' Accuracy and Predictive Validity," which was published in *Psychological Review*. The authors' paper was no small task in that the meta-analytic study's data included 263 independent personality studies totaling 44,178 participants. The authors found that, as the title suggests, personality as rated by someone other than the individual in question can, in some instances, be more predictive of work performance and can be particularly accurate for difficult to observe traits such as emotional stability.
2. 2013: **In-Sue Oh**, **Gang Wang**, and **Michael K. Mount** for their paper, "Validity of Observer Ratings of the Five-Factor Model of Personality Traits: A Meta-Analysis" published in the *Journal of Applied Psychology*. The authors' work, not unlike that of Connelly and Ones, sought to better

understand non-self-reported ratings of personality (i.e., other-rated personality) using meta-analytic data from 16 studies totaling over 1,500 participants. The authors' findings demonstrated that (a) other-rated personality predicts performance over and above self-rated personality, and (b) a wider breadth of personality traits predict performance than previously thought, when, that is, rated by someone other than the individual in question (i.e., other-rated).

3. 2014: **Bart Wille, Filip De Fruyt**, and Barbara De Clercq for their paper entitled, "Expanding and Reconceptualizing Aberrant Personality at Work: Validity of Five-Factor Model Aberrant Personality Tendencies to Predict Career Outcomes." Using a well-known personality framework—the *five-factor model*—the authors reconceptualized how distinct traits within that framework might be recombined to create six different aberrant personality tendencies: *antisocial*, *narcissistic*, *borderline*, *schizotypal*, *obsessive-compulsive*, and *avoidant*. Importantly, however, the authors collected data on these tendencies at two points in time, once at the beginning of the participants' career and then again 15 years into their career. The authors found that the tendencies above were highly stable across time. Further, the findings indicated that, with the exception of obsessive-compulsive, all aberrant personality tendencies predicted career outcomes over and above the more traditional conceptualization and implementation of the five-factor model.
4. The 2015 winner should be familiar in that the Hogan Personality Award was the team's *second* SIOP award, the first being the Jeanneret Award spotlighted in the Summer 2016 issue of *TIP* (Volume 54, Number 1). Using an unfolding or ideal-point item response theory (IRT) scoring method, the authors examined whether such models better identified curvilinear relationships between personality and work performance. The "too much of a good thing" perspective suggests that, for example, highly conscientious individuals might be *too* conscientious and too task focused, seeing the trees rather than the forest if you will. The authors found that an ideal point IRT model did indeed improve detecting curvilinear relationships between conscientiousness and work performance. It is worth noting that despite detecting such curvilinearities, the bivariate validities between conscientiousness and performance were roughly the same *regardless* of the scoring procedure (.09 to .12). What did change, however, was the rank ordering of expected performance at the higher end of the conscientiousness distribution; individuals who would have been identified as top candidates using traditional scoring methods became lower ranked candidates using the ideal point IRT model. These rank changes, although few, proved highly impactful in that some individuals' ranking dropped enough to be surpassed by an otherwise lower ranked individual, which alters top-down candidate selection procedures. As such, the IRT scoring method ultimately resulted in better selection decisions in that individuals too conscientiousness were given less weight than individuals *moderate* in conscientiousness.

#### **2016 Hogan Personality Award Winner**

For their work entitled, "Reciprocal Relationship Between Proactive Personality and Work Characteristics: A Latent Change Score Approach" published in the *Journal of Applied Psychology*, we are pleased to spotlight the 2016 Hogan Award Winners **Wendong Li, Doris Fay, Michael Frese, Peter Harms**, and Xiang Yu Gao. The paper's first author Wendong was quite gracious giving us his time to better learn about the team's award winning work described below.

#### **About Dr. Wendong Li**

Dr. Li is currently an assistant professor at the Chinese University of Hong Kong and was previously an assistant professor at Kansas State University. Wendong's research focuses on proactivity across several

areas, including, for example, leadership, work design, and employee well being. Overall, Dr. Li is interested in how people are willing and able to modify their environments, as well as understanding more reactive but effective behaviors for when one's environment is the modifying force. In other words, Dr. Li is interested in how individuals adapt to environmental changes due to forces beyond the individual's own actions. Through a variety of perspectives, Dr. Li studies both individual (e.g., personality, genetics) and environmental (e.g., organizational culture) proactivity-promoting characteristics, which, he acknowledges, can have both positive and negative consequences for individuals.

Dr. Li's research approach has indeed been quite successful producing publications in highly respected journals, such as the *Journal of Applied Psychology*, *Personnel Psychology*, and *Leadership Quarterly*. In addition to the Hogan Personality Award, Dr. Li's work has earned him several other awards, including the International HRM Scholarly Achievement Award and Best Student Convention Paper Award from the Human Resources Division of the Academy of Management and the Best Paper Award in the Organizational Behavior Division of the Asian Academy of Management. His work has also been featured in several publically facing media outlets, including *USA Today* and *The Washington Post*.

### **About the Award Winning Research**

As noted above, Dr. Li and team's award winning paper studied the reciprocal relationships between a personality trait known as *proactive personality* and work experiences. Proactive personality, which, Dr. Li notes, is distinct from the traditional Big Five personality traits, is a relatively stable tendency wherein individuals strive to enactively change their environment. After, however, hearing a lyric from a Chinese folk song—*"is there anybody that can tell me, is it us that have changed the world, or is it the world that has changed us?"* —Dr. Li began wondering if the direction of change between person and environment might also be reversed such that the environment actively changes the individual.

To further explore such ideas, Dr. Li reached out to colleague and coauthor Michael Frese and identified a relevant longitudinal data source from a prior study for which Dr. Frese was the principal investigator. As the Chinese folk song foresaw, more proactive individuals acquire more job demands and more job control, and this acquisition made people *even more* proactive in the future. This finding reveals a spiraling pattern of individuals proactively changing their work environments and their work environment responding in kind. Dr. Li is quick to note, however, that "in kind" can be a double-edged sword where being proactive often means the environment responds with additional responsibilities that, in turn, force the individual to be even more proactive to fulfill those responsibilities. Continuing unchecked, proactivity may therefore have a "dark side" if such actions ultimately produce a level of job demands exceeding the individual's capabilities, which speaks to the onus of organizations to also provide adequate levels of additional resources to compensate for the increases in demands.

### **Interdisciplinary Crossovers**

Although I-O psychologists are undoubtedly aware of personality and its role in the workplace, Dr. Li notes that the study of personality is, itself, an entire discipline with great depth. For instance, personality scholars are studying within-person changes or variability in personality, domain specific personality, and personality states. As such, he considers his work described above as an interdisciplinary effort to merge traditional I-O psychology and organizational behavior with contemporary personality research. In particular, Dr. Li notes that much of the organizational behavior field acknowledges a limited range of personality constructs and, most often, views such constructs as

relatively fixed. Changing this status quo view of personality in organizational behavior, he notes, is a significant challenge facing researchers, like Dr. Li, who strive to integrate findings across several diverse disciplines. The potential communication difficulties of interdisciplinary work notwithstanding, Dr. Li notes that the diversity accompanying such work is vital for a successful research team. For instance, Dr. Li conducts research on molecular genetics, which is certainly not his area of expertise. Nevertheless, he has assembled a team that does include molecular geneticists, from which he has learned and developed new perspectives for problems in his other work.

### **Dr. Li's Advice**

In short, let passion and interest guide your research journey. Recognizing the value of publishing in top tier journals, Dr. Li notes that research can be an inherently risky process. In some instances, high quality work may nevertheless be overlooked for reasons unrelated to the work itself. Sometimes, that is, the stars align and sometimes they do not. "Thus, the important question," concludes Dr. Li, "becomes, even if you know it may not get to a top-tier journal, would you still be willing to work on this project? If you really believe this is important work, work on it no matter whether it can hit a so-called top-tier journal. I know this is easier to say, but this is something I realized lately."

**Garett Howardson** is the founder and principal work scientist at Tuple Work Science, Limited. Most of his work focuses on quantitative, psychometric, and/or computational issues to better understand the psychology of modern, technical work writ-large (e.g., aerospace technicians, computer programmers). Garrett is also an avid computer geek. In fact, he has a degree in computer science, which he avidly applies to his research and work in pursuit of one deceptively simple goal: better integrate I-O psychology and the data/computational sciences to understand work.

**Liberty Munson** is currently the principal psychometrician and assessment and exam quality lead at Microsoft. She is responsible for ensuring the validity and reliability of Microsoft's certification and degree programs. Her passion is for finding innovative solutions to business challenges that balance the science of assessment design and development with the realities of budget, time, and schedule constraints.

Liberty loves to bake, hike, backpack, and camp—basically, if the sun is shining you'll find her enjoying the great outdoors; if not, she's in her kitchen tweaking some recipe just to see what happens. She has also been actively involved in editing Microsoft's Cookbook to raise money for a local charity, FareStart, as part of Microsoft's Give Campaign. She just got a new mini schnauzer puppy, Apex!

## **On Using Personal Experience for Research Inspiration**

**Allison S. Gabriel**  
**The University of Arizona**

The most daunting part about starting a tenure-track position was building a research pipeline that would sustain me through tenure. This shouldn't be surprising; most new faculty talk about the "publish or perish" mentality that comes with academia, and I certainly found myself in that category. Honestly, if you ask most of the people I collaborate with, they will *still* say that I am fairly vocal about my fears surrounding publishing. Personally, I think half of the battle is finding the people you "click" with—who are interested in similar ideas, who will challenge you in a productive manner, and who make you want to be a better researcher. The second half of the battle, however, is trying to figure out what to be researching in the first place.



When I first started my tenure-track position back in the fall semester of 2013, I will readily admit that I had no idea how to address that second point. I was fortunate in that I had several projects in the cue with former advisors and graduate student colleagues that I knew I could submit early into my tenure process. But, I found myself repeatedly asking: What now? When the graduate school pipeline dries up, where do I go from there? Having a fairly clear research identity helped answer this in some ways. For instance, I had researched ideas tied to emotional labor and emotion regulation (e.g., Grandey, 2000; Hochschild, 1983) during my time as an undergraduate *and* as a graduate student, and this filled up my first couple of years on the tenure clock (e.g., Gabriel, Cheshin, Moran, & Van Kleef, 2016; Gabriel, Daniels, Diefendorff, & Greguras, 2015; Gabriel & Diefendorff, 2015; Grandey & Gabriel, 2015). However, I found myself being drawn to new ideas that separated a bit from that early research identity based upon something else: personal experiences. In fact, a lot of conversations I have with coauthors these days relate to experiences—some serious, some funny, and some somewhat in between—that end with us seriously asking, “Hey, could we test that somehow?”

This past year at the Academy of Management (AOM) conference, I built a presentation around this idea—of researching ideas that happened to me in an empirically and theoretically sound way—at a professional development workshop focusing on publishing and productivity. In doing so, I took a recent paper (e.g., da Motta Veiga & Gabriel, 2016) that I published with Serge da Motta Veiga, who you may recognize from my earlier *TIP* column on surviving the job search, which really began out of personal experience. We met on the job market in 2012 at the interviews that happen at AOM—these are brief (10–15 minute) interviews that business schools use to help sort through their applicants. In reality, we were competitors; every single time I went to meet with a school, Serge was either leaving an interview with the faculty at that program, or was waiting next in line to interview after me! Eventually, we had a conversation that basically revolved around two key questions: Who are you, and what do you research?

Luckily for me, meeting Serge was great because (a) we, along with our spouses and dogs, are all friends, and (b) we ended up planning a data collection that we ran the first semester in our new jobs that spun into one paper that is published, two manuscripts that are in progress, and several other spin-off data sets and data collections. This all stemmed from a simple question: Can we take our job search experiences and see if they generalize to other people? Of course, taking that personal experience question and building it out into a research pipeline isn’t all that simple; there are several steps in the process that I think need to be carefully answered, and doing so isn’t always easy. So, as I engage in some active sensemaking about what has worked for us, here are the questions and/or issues that I think researchers need to tackle if they want to make the leap from personal experience to publication. In answering them, I’m going to pull from our paper (da Motta Veiga & Gabriel, 2016) to explain how that project came to light.

**1. What is it that makes this event interesting/unique, and why is it piquing my interest?** Serge and I developed a shared interest around understanding the ups and downs of the job search process. In particular, we found that our motivation levels throughout the job search were changing dramatically. At the beginning, we both agreed that we were job hunting because it was fun, and it was aligning with our long-term career goals that we had set. However, as the process began chugging along, the motivation began to shift: Family members and friends were becoming more inquisitive about whether the process was over, the realities of graduate school finishing and needing jobs were really setting in, and all of a sudden, we felt like we were pursuing a job out of all these external sources of pressure versus the fun that it once was. Now, this isn’t to say that the fun and games of the job search totally

disappeared. In fact, going on job talks, we agreed, was always a lot of fun because we got to meet so many interesting people. But, two things became clear to us rather quickly: (a) our motivations were varying in quality, or the type of motivation we were experiencing, and (2) how much of each type of motivation we were experiencing was varying week-to-week as well. As such, this event was interesting because our motivation was shifting *a lot* week-to-week, and this was affecting our search-related behaviors.

**2. Have other people experienced a similar event, or am I just an anomaly?** In the case of the job search, we had at least an  $n$  of 2, so we figured that was a good place to start in answering this question! In reality, we did talk to others who were on the market to see if they were going through similar things (they were), and we also ran it by our nonacademic friends and family members to see if our experience matched what they experienced outside academia (generally speaking, it did). Often times, when I talk to my parents or nonacademic friends about my research—and not just the study I am referring to here, by the way—I wait for them to say something to the effect of “Oh, that makes sense,” or “I could totally see that happening.” I think it is important to stick to the applied part of our work and really answer questions that are affecting “real world” people, because if we aren’t asking those questions, I always have to take a step back and say, “You know, what am I *really* doing here?” Verifying that your experience is happening to other people can help ensure that yes, this might just be something that generalizes.

**3. What is the theoretical framework that this event would fit within? That is, can I address a theoretical gap, or is it just something “kitchy” that I like only?** Applied points aside, the big hurdle is making a theoretical contribution—I have gotten way more feedback on the theoretical contribution of my work at journals than I have the practical implications! For me, this is *always* the toughest part of taking personal experiences and flipping them into research questions. I cannot even tally up the number of research calls I’ve had that have gone something along the lines of, “Oh, that is interesting, but isn’t that theoretically similar to X, Y, or Z? Isn’t the theoretical contribution already taken?” If I can’t answer the theory question, or I can’t think of a broad contribution to the literature, I stop. A lot of times, this decision is really hard, and that’s the double-edged sword of personal experiences leading to research questions—for me, I get *really* personally invested when a topic hits close to home, and I have serious escalation of commitment issues when it comes to dropping an idea. Luckily, for the project that Serge and I were working on, we were able to figure out the theoretical gap. Specifically, we realized that the changes in quality (i.e., type) and quantity (i.e., amount) of motivation could be grounded in self-determination theory (SDT; Deci & Ryan, 1985) and that no one in the job search research had really taken this perspective before. Our experiences could be described consistently with SDT, given that this theory argues that one’s motivation varies from *autonomous* (pursuing goals because they are fun, valuable, and important) to *controlled* (pursuing goals due to external pressure, guilt, or shame) reasons of goal pursuit. This was our “big break,” and we ran with it.

**4. How can this personal experience/event be studied in a meaningful way?** The final hurdle is always scaling an experience to a well-designed study. For me, the questions that I gravitate toward are always intraindividual, or varying event to event, day to day, or week to week, and luckily, Serge’s brain tended to think in that manner, too. This similar mindset is a good thing, because we honed in on the same research design at the same time: a weekly study in which we assessed job seekers’ levels of motivation and effort throughout the course of their job search (about 5 weeks). This let us capture not only the amount of motivation job seekers were experiencing throughout the job search but also how the different types of motivation changed, too, and this was crucial to attempt to replicate our personal experiences. Luckily, things did work out: the results panned out how we thought they would, and this

obviously helped ensure that our paper was publishable. But, the best part is that we were able to publish a research story that really reflected us and what we went through. In fact, the last sentence of our paper is: “Our results suggest that, although the job search may start out as fun and games, external pressures and consequences can drive job search success across the finish line” (da Motta Veiga & Gabriel, 2016, p. 359). That one sentence summed up our job search in a big old nutshell, and I’m happy to say that similar personal notes are being hit in our other job search projects.

So, for those of you who are toying around with where research questions come from (that is the age old question, after all), don’t discredit day-to-day experiences that you have. Instead, ask tough, theoretical questions about them to help you identify research ideas. More importantly, don’t be afraid to share your personal story with others during the research process. It will make you feel more connected to your work! Just ask folks who have seen me present about my orange juice story—you *really* can find research inspiration *anywhere*.

### Note

<sup>1</sup>*Urban Dictionary* defines this word as really cheesy, yet cool. I know I’m super hip.

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### Considering Supreme Court Nominee Neil Gorsuch’s Record on Employment Law

#### Art Gutman

It is an honor to be writing for *On the Legal Front* again. I am delighted that Rich has done such outstanding work with the column, and, as expected, EEO matters continue to be of relevance to the SIOP community. During my tenure as columnist I devoted substantial space in this column to Supreme Court rulings, and the unique and varying perspectives of Supreme Court justices involved in each ruling.<sup>1</sup> With the death of Justice Antonin Scalia in February 2016, the Court lost a stable and influential conservative judicial voice. Although we took a long and winding road to formally identify a Supreme Court nominee that will actually go through a confirmation process, Neil Gorsuch is President Trump’s candidate.

I thought it would be useful to summarize and evaluate Judge Gorsuch's employment law record as a 10<sup>th</sup> Circuit Judge.<sup>2</sup> In researching Judge Gorsuch's record, I found 13 employment discrimination cases I felt warranted review. I also found some National Labor Relation (NLRA) cases, but for purposes of exposition, I will focus on the more standard employment cases (e.g., Title VII, ADA, ADEA, retaliation, etc.) that I view as more relevant to the SIOP community. By my count, nine rulings were favorable to employers and four were fully or partially favorable to employees. Sizing up a potential justice is, of course, more than a matter of wins and losses by employers and employees. The key ingredient in any case are its facts. I will briefly review the facts in each case and reach some speculative conclusions at the end of the column.

### **Cases Favorable to Defendants**

#### **1. *Hwang v. Kansas State University* (2014) [753 F.3d 1159]**

This is a Rehabilitation Act case in which an associate professor claimed disability discrimination because the university refused to extend her sick leave beyond 6 months after she was diagnosed with cancer. The university contended that Hwang was unable to perform the essential functions of her job, and it was unreasonable to hold the job open for more than 6 months. Hwang's disparate treatment argument was that similarly situated non-disabled faculty were better treated than she was, to which Gorsuch opined that she was not similarly situated to those on sabbatical because of factors such as tenure or seniority.

#### **2. *Myers v. Knight Protective Service* (2014) [774 F.3d 1246]**

This was primarily an ADA case that also included a failed Title VII race claim. On the ADA claim, Myers had previously filed for Social Security Disability (SSDI), and the question in this case was whether that filing and the ADA claim were contradictory. The Supreme Court addressed the relationship between SSDI and ADA claims in *Cleveland v. Policy Management Systems* (1999) [526 U.S. 795] and ruled that the SSDI claim does not automatically preclude the ADA claim because the ADA has a reasonable accommodation requirement and SSDI does not. However, there is a burden on the employee to explain why the SSDI claim does not negate the ADA claim. Stated differently, a person claiming total disability has to at least facially show that there are accommodations that would permit performance of essential job functions. In this case, Gorsuch ruled that Myers failed to provide a sufficient explanation for the apparent contradiction on his written employment application and his SSDI claim regarding his physical condition. Myers had undergone a number of back and neck surgeries and on his application offered that he was not in pain and was feeling ok. This was in direct contraction to observations by his supervisors that he was in pain and was not suitable to be an armed guard, and he could not go back to work without passing a physical exam.

#### **3. *Roberts v. IBM* (2013) [733 F.3d 1306]**

This is an age discrimination (ADEA) case involving termination. Roberts presented evidence from instant messages between two human resources managers mentioning his "shelf life." Roberts presented it as direct "smoking gun" evidence of age discrimination, but IBM countered the phrase was nothing more than reference to his queue of billable work. Gorsuch ruled that Roberts failed to prove that the explanation offered was a pretext for discrimination.

#### **4. *Elwell v. Oklahoma Board of Regents* (2012) [693 F.3d 1303]**

The plaintiff in this case claimed failure to reasonably accommodate her disability and wrongful termination. The problem was she used Title II of the ADA, not Title I. Title I applies to employment, whereas Title II applies to services, programs, or activities of a public entity. The ruling here (as in all other courts in such cases) is failure to state a claim because the wrong statute was used. Thus, the plaintiff's claim was decided on a technicality (albeit an important one), not on merits.

#### **5. *Almond v. Unified School District* (2011) [665 F.3d 1174]**

This case also involved some technicalities. Two employees that learned their jobs were being eliminated were offered demotions with pay reductions. They argued that age discrimination and not

budget cuts was the cause of the demotions. This one lost on a technicality because the ADEA claim was made past the 300-day statute of limitations. The lesson here is that they should have filed the ADEA claim when notified, not later on when demoted. The plaintiffs also had an Equal Pay Act (EPA) Claim, and although this one was not time barred, Gorsuch ruled that they had never claimed unequal pay for equal work. He further noted that the plaintiffs may have been discriminated against in the transfer decision, but they were not discriminated against in compensation. Thus, one claim failed on technical grounds and the other because the EPA is only concerned with unequal pay for equal work.

**6. *Johnson v. Weld County, Colorado* (2010) [594 F.3d 1202]**

This case is a combination Title VII and ADA case that has implications for both statutes. A female passed over for the position of fiscal officer in favor of a male claimed she was denied the job because of her sex and because she had multiple sclerosis. The sex discrimination claim failed because the male candidate had stronger credentials (education, experience, etc.). The ADA claim failed because the plaintiff claimed to be highly competent, and she failed to prove her muscular sclerosis substantially limited her ability to work. In other words, she was deemed not disabled within the meaning of the ADA.

**7. *Hinds v. Sprint United Management* (2008) [523 F.3d 1187]**

This case involved a claim of age discrimination and retaliation after the plaintiff was terminated in a layoff. Hinds claimed that the managers responsible for the layoff used subjective decision making and a spreadsheet in which the ages of the employees were in hidden cells. Gorsuch ruled that even if the decision makers knew the ages of the various employees, the facts failed to support a theory of age discrimination. Gorsuch also ruled that Hinds failed to establish a prima facie case of retaliation.

**8. *Montes et al. v. Vail Clinic* (2007) [497 F.3d 1160]**

The claim in this case was Title VII hostile work environment and national origin discrimination by eight former employees. The work itself was housekeeping. Five of the plaintiffs could not establish the timeliness of their claims (beyond 300-day statute of limitations). For the remaining plaintiffs, the complaint was that additional work requirement and speak-English-only rules established a hostile working environment. The work requirement was rejected by Gorsuch on grounds that the employer was short staffed and needed additional work time from all of its employees not just those who are Hispanic. The speak-English-only rule was supported on grounds that it was narrow (not at all times) and job related.

**9. *Young v. Dillon Companies* (2006) [468 F.3d 1243]**

The most important claim in this case was that Young, a retail investigator, suffered racial discrimination in termination. This ruling was pretty simple. Young stole time by leaving work early without reducing his time. The reason given for termination was accepted by Gorsuch: that Young committed a termination-worthy offense. Young could not mount a pretext argument and lost. Other charges (inconsistency with the parties' implied contract terms and of the doctrine of promissory estoppel) were dismissed.

**Cases Favorable to Plaintiffs**

**1. *Walton v. Powell* (2016) [821 F.3d 1204]**

This case involved a 1<sup>st</sup> Amendment retaliation claim against a newly elected public official who claimed qualified immunity for dismissing an employee from the prior administration. The facts are that Powell, a Democrat, won an election and Walton, a Republican, was terminated. Prior to the election, the outgoing Republican appointed Walton to a senior level civil service job that, by state law, should have protected her from termination for political reasons. The lower court denied summary judgement for the defense and Gorsuch affirmed. Walton presented evidence that political affiliation was the reason she was dismissed and, according to Gorsuch, supported that her conduct was a matter of public concern and that political affiliation was a substantial or motivating factor in her dismissal. Because Walton established her 1<sup>st</sup> Amendment rights, the claim of qualified immunity was defeated. Stated

differently, although public officials have qualified immunity for discretionary acts, they come to court as ordinary citizens when the claim is employment discrimination (see *Hafer v. Melo* (1991) [502 U.S. 21]).

## **2. *Barrett v. Salt Lake County* (2014) [754 F.3d 864]**

Although Gorsuch did not cite it, this case is like the Supreme Court ruling in *Crawford v. Metro* (2009) [555 U.S. 271] in which the termination of an employee for helping a coworker who testified on behalf of another employee on a harassment charge was unlawfully terminated. The circumstances in this case were analogous to those in *Crawford* in that Barrett also helped a coworker pursue her sexual harassment claim. Gorsuch ruled it is a “rational” inference that unlawful retaliation took place. I find it interesting that *Crawford* was not cited. Nevertheless, the opinion is clearly consistent with that ruling.

## **3. *Orr v. City of Albuquerque* (2008) [531 F.3d 1210]**

This is a classic example of pretext. Female police officers that took maternity leave were negatively affected in terms of eligibility for early retirement. The City argued it was pursuing a uniform policy applicable to all employees. The plaintiffs claimed they were forced to use sick leave whereas other (non-pregnant) employees were permitted to use vacation for leave under the Family Medical Leave Act (FMLA) and compensatory time. This rendered the “uniform policy” defense a pretext.

## **4. *Williams v. W.D. Sports* (2007) [497 F.3d 1079]**

In this case, female employees of a hockey team claimed sex discrimination and harassment. There were 30 rulings in this case, but only one of them, an important one, favored the plaintiffs. The claim was retaliation against an employee who applied for unemployment benefits. The ruling favoring the employee was based on threats by the employer to oppose her claim for the benefits. Although she had no support for her contention that benefits were withheld, Gorsuch ruled that the threat itself was sufficient to dissuade a reasonable employee from filing a Title VII claim.

## **Conclusion**

There are probably other cases that may be worth reviewing. But, NLRA cases aside, these were the only matters involving traditional employment discrimination claims. I would be very surprised if he isn’t confirmed. What do the facts in these cases say for what to expect from Gorsuch when he ascends to the Supreme Court? To me it looks like he’s a stickler for the letter and literal interpretation of the law. In other words, he impresses me as being much like Scalia was, and how Alito and Thomas continue to be.

Given the current makeup of the court, I think it is reasonable to assume that Gorsuch will align with Alito, Thomas, and Roberts on many issues similar to how Justice Scalia did. I also think it is reasonable to assume that Justices Sotomayor, Ginsberg, Breyer, and Kagan will continue to align on many issues, once again leaving Justice Kennedy as a likely “swing vote.” Obviously the direction of the court could shift dramatically should President Trump get the opportunity to nominate another judicially conservative Justice in the event that Justice Ginsburg (who is 84), Kennedy (who is 81) or Breyer (who is 79) step down. That would seem to be a game changer. Stay tuned.

## **Notes**

<sup>1</sup> Examples include:

<http://www.siop.org/tip/oct09/08gutman.aspx>

<http://www.siop.org/tip/july12/18gutman.aspx>

[http://www.siop.org/tip/Apr13/20\\_Gutman.aspx](http://www.siop.org/tip/Apr13/20_Gutman.aspx)

<sup>2</sup> Much of this article was originally written as a blog for DCI Consulting Group, and Rich felt that it was worth expanding for *TIP*. The original blog can be found here: <http://dciconsult.com/judge-neil-gorsuchs-record-employment-law-10th-circuit-court-judge/>.

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Almond v. Unified School District (2011) [665 F.3d 1174]  
Barrett v. Salt Lake County (2014) [754 F.3d 864]  
Elwell v. Oklahoma Board of Regents (2012) [693 F.3d 1303]  
Hinds v. Sprint United Management (2008) [523 F.3d 1187]  
Hwang v. Kansas State University (2014) [753 F.3d 1159]  
Johnson v. Weld County, Colorado (2010) [554 F.3d 1202]  
Montes et al v. Vail Clinic (2007) [497 F.3d 1160]  
Myers v. Knight Protective Service (2014) [774 F.3d 1246]  
Orr v. City of Albuquerque (2008) [531 F.3d 1210]  
Roberts v. IBM (2013) [733 F.3d 1306]  
Walton v. Powell (2016) [821 F.3d 1204]  
Williams v. W.D. Sports (2007) [497 F.3d 1079]  
Young v. Dillon Companies (2006) [468 F.3d 1243]

#### **Other Cases Cited**

Cleveland v. Policy Management Systems (1999) [526 U.S. 795]  
Crawford v. Metro (2009) [555 U.S. 271]  
Hafer v. Melo (1991) [502 U.S. 21]

#### **Max. Classroom Capacity: To Pop or Not? A Discussion of Pop Quizzes as Learning Assessments Loren J. Naidoo, Baruch College and the Graduate Center, CUNY**

Welcome readers! Pop quiz: who was the first president of SIOP?

It was Bruce V. Moore, 1945-46! By the way, for a taste of the swashbuckling early days of I-O psychology, check out [his SIOP president autobiography](#)—I love how he casually tosses around names like Thorndike, James, and Thurstone!

Anyway, as I just clearly demonstrated, everyone loves pop quizzes! OK, fine, some people love *trivia*—*nobody* loves pop quizzes. Or do they? Or, if they hate them, maybe that's OK, because they work? These are the questions I'm going to try to answer in this column!

Let me describe why I'm writing about this. I often teach large undergraduate classes of about 115 students. Years ago I invested a lot of time developing multiple choice exams (usually four/semester) that require more than memorization of definitions. It was a huge amount of work initially, though relatively easy to administer and grade. Here's an example item:

Hari has just moved to New York City. All his friends from Ohio told him that cab drivers are really unfriendly. As a result, Hari tends to expect unfriendliness from cab drivers, to notice when they act unfriendly, and doesn't remember the cab drivers who were friendly. Which bias/heuristic best describes this scenario?

(a) Availability heuristic

(b) Implicit person theory

(c) Confirmation bias

(d) Hindsight bias

Although I liked the objectivity of these exams and was satisfied with the item design, many students found them tricky, and some seemed unable to improve their scores no matter how much guidance I gave them on appropriate studying and test-taking strategies. This was very discouraging for them and me. It made me wonder to what extent I was assessing intelligence, test wiseness, or reading ability rather than understanding and application of the material, the outcomes I wanted to assess. Moreover I was concerned with students' tendency to "cram" for infrequent, high stakes exams, which tends to inhibit deep encoding and long term information retention. Many students expressed anxiety about their upcoming midterm exams, despite the fact that I offered an optional cumulative final that they could take to replace their lowest midterm grade. I believe, in part informed by research on goal orientation, that if you value deep processing and long term information retention, then you need to de-emphasize performance and grades and emphasize content mastery. For me multiple choice exams undermined these aims.

So I decided to use pop quizzes instead. I think I stole the idea from Professor Rich Koestner, whose undergraduate psychology of motivation class at McGill University had an enormous positive impact on my research interests and career.

By pop quizzes I mean assessments that are (a) high frequency (~10 per semester), (b) brief (~15 minutes), (c) unannounced—students are informed that they may be quizzed at the beginning of any class, (d) required (i.e., not "bonus" assignments), and (e) graded. Specifically, the idea was to develop assessments that encourage students to distribute their studying more evenly (rather than cram), reduce anxiety because each individual quiz is relatively low stakes, and minimize the influence of test wiseness. Together the quizzes form 50% of the final grade, but the lowest quiz grade is dropped, so each individual quiz is worth about 5%. Students are informed of these policies in the syllabus and first class meeting in which I discuss all of the reasons why I switched from multiple choice exams to pop quizzes. I really emphasize that I care about students' learning, and the quizzes are designed to encourage healthy study habits and give students immediate feedback on their learning.

Here's how it works. Before each class I decide whether I want to administer a pop quiz, what material will be covered, and how to score answers. Quiz topics are pulled from the prior class or two and/or assigned readings. Usually the quizzes are written as scenarios that require students to apply their knowledge of relevant theories or research. I try to make them fun. Quizzes are administered during the first 15 minutes of class, are closed book, and no collaboration is allowed. We discuss the answers immediately afterwards. I grade them myself by hand—up to 1 minute per quiz x 115 students. Here's an example quiz:

Xenia notices her prof carrying a pile of papers, which she takes to mean that there will be a pop quiz in 10 minutes! She immediately panics: her heart races, she sweats, and she feels extremely anxious. Soon after, she thinks: "I have 10 minutes to study, I already read the material once last



night, I can ask Raj who sits next to me about the one theory that I'm confused about—I can do this!" And she no longer feels panicked.

- 1) From the research on stress, what two aspects of the appraisal process are illustrated here? Please use the appropriate labels, and explain which is more automatic and which is more subject to cognitive control.
- 2) According to Lazarus and Folkman's demands-resources model, is Xenia experiencing stress?

Although the switch to pop quizzes wasn't a completely uninformed decision on my part, it certainly would have been helpful to have a reference guide on their pros and cons, informed by the experiences of fellow I-O psychologists and relevant empirical research. That's what I hope this column will be for you.

So I e-mailed some respected colleagues who teach I-O at various levels in an informal survey. Many of them responded immediately, for which I am very grateful! Three themes emerged. First, many folks considered (or inferred) the purpose of pop quizzes to be to hold students accountable for completing assigned readings or attending class and that pop quizzes generally work well for those outcomes. Second, for some, pop quizzes were used spontaneously as a threat to increase accountability or a punishment for poor student effort or preparation rather than being built into the grading scheme described in the syllabus. Third, many faculty members were concerned that pop quizzes produce anxiety among students, in part due to the uncertainty around timing and in part due to students' busy schedules not permitting them to study before each class. A few felt more positively about pop quizzes, but they typically used them as part of students' participation grades or didn't grade them. On the whole, faculty views of pop quizzes showed very little overlap with my rationale for using them. That makes me a bit nervous, but it was a small nonrandom sampling of faculty. What does the research literature say?

I conducted a quick, nonexhaustive search of the psychology and education literatures for empirical research on "pop quizzes" and "unannounced exams," and so forth. I found very little research on the topic overall and even less that used structured research designs with adequate sample sizes. Most was centered on the question of how to improve compliance with reading assignments. For example, Ruscio (2001) examined performance on randomly assigned pop quizzes that tested whether students read and understood the assigned readings and found that the quizzes were passed 70–90% of the time. However, as there was no control group, these results are difficult to interpret. Only one study, Anderson (1984), proposed quizzes as a means of reducing cramming, although Anderson examined *announced* rather than pop quizzes. The effects of weekly quizzes versus no quizzes on studying and exam performance were tested using a within-subjects ABA experimental design with 13 students across 15 weeks of a behavioral science medical class. Students studied more during quiz weeks compared to nonquiz weeks, but there was no effect on subsequent exam performance.

Graham (1999) tested the effects of pop quizzes versus no quizzes in a similar within-subjects experimental design using students from two psychology classes. Graham found that grades on high stakes exams preceded by quizzes were significantly higher compared to those not preceded by quizzes, though the effect was small. However, the positive effect of quizzes on exam performance was larger for students with B–D average grades compared to those with A (presumably due to a ceiling effect) or F grades.

Several other researchers advocated for the use of pop quizzes based on anecdotal evidence (Bebrend, 2013; Carter & Gentry, 2000; Thorne, 2000), nonexperimental designs (Sappington, Kinsey, & Munsayac, 2002), or self-reported studying and attendance behavior (Kouyoumdjian, 2004).

In sum, there's little empirical evidence on the effects of pop quizzes on learning, and I found nothing that investigated the question of whether they produce greater anxiety than other assessment methods.

Interestingly, as you may have noticed, one my goals in adopting pop quizzes in place of high stakes multiple choice exams was to *reduce* student anxiety—the very outcome that most surveyed faculty members associated *with* pop quizzes. How do actual students feel about this? Well, I asked my class. At that point they had had two pop quizzes, neither of which had been graded. To be clear, I just asked them in class after their last quiz—this was not an anonymous survey.

Several different opinions were expressed, but I can characterize the general response as a kind of grudging, semiresentful acknowledgement that being forced to read and study regularly is probably a good thing. Bingo! One or two students quite passionately expressed their dislike of pop quizzes, and their concerns were the pressure, lack of scheduling flexibility, and anxiety about unpredictability—all consistent with many faculty members' concerns. I initially concluded that students on the whole did not like pop quizzes. But, at the very end, I asked students to indicate by show of hands how many disliked pop quizzes more than liked them, and how many liked pop quizzes more than disliked them. To my surprise about ¾ of the class reported *liking* pop quizzes more than disliking them! Only a handful of students (albeit a very vocal minority) disliked them more than liked them.

I have three concluding points:

1. Here's why I like pop quizzes: They give me (and, hopefully, students) insight into blind spots and inaccurate mental models. Students get immediate feedback, and we can discuss confusions or misconceptions on the spot. They require students to distribute their efforts more evenly over time rather than cram, which should benefit long term retention and deep processing of information to the extent that cramming undermines these things. They are low stakes, which should reduce anxiety, though maybe it's a wash due to increased anxiety from the uncertainty and scheduling inflexibility. Finally, they give students more experience writing compared to multiple choice tests.
2. Here's what I don't like about pop quizzes: They are often onerous to grade, and although any assessment method is likely to be hated by a minority of students, perhaps no assessment method will be hated quite so intensely.
3. It's very clear that this is an area that could benefit from more empirical research. If anyone is interested in working on this, please let me know!

As always, please e-mail me if you have questions or comments, or even just to say hello. Thanks for reading!

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### **SIOP in Washington: Advocating for I-O in Federal Public Policy**

**Jill Bradley-Geist**

**University of Colorado Colorado Springs**

**and Laura Uttley**

**Lewis-Burke Associates LLC**

*Since July 2013, SIOP and Lewis-Burke Associates LLC have collaborated to make I-O science and research accessible to federal and congressional policy makers. SIOP has embedded a foundational government relations infrastructure within the organization, enabling SIOP to develop an authoritative voice as a stakeholder in science policy in Washington, DC and to promote SIOP as a vital resource for evidence-based decision making.*

### **SIOP Responds to National Academies' Call for White Papers on Social Science and National Security**

On February 15, SIOP responded to a call for white papers from the Board on Behavioral, Cognitive, and Sensory Sciences (BBCSS) within The National Academies of Sciences, Engineering, and Medicine to help shape initial work on [Social and Behavioral Sciences for National Security: A Decadal Survey](#). The *Decadal Survey* seeks to identify “the intelligence community’s needs and challenges with respect to the use of social and behavioral sciences (SBS) research for analytic capabilities.”

SIOP’s comments centered around addressing the challenges associated with creating an effective workforce within national security agencies using scientific best practices, many of which are based in organizational psychology (I-O). The response identified some of the challenges typically faced by individuals, teams, and organizations that can also be applied to the intelligence community. These include recruitment, selection, retention, management of national security professionals, as well as development of high performing teams and competent leaders within the intelligence community. Finally, the Society’s response summarized the findings of a 2011 report by the Academies titled *Intelligence Analysis for Tomorrow: Advances from the Behavioral and Social Sciences*, which provided specific analysis of the issues highlighted above.

SIOP is dedicated to ensuring the intelligence community is aware of the importance of I-O psychology and how its applications may address the challenges of effective workforce development. The Society’s comments submitted to the *Decadal Survey* further advance the Society-wide goal to integrate team science across the federal government.

### **GREAT and Lewis-Burke to Host Session at SIOP Annual Conference**

During the SIOP Annual Conference, the Government Relations Advocacy Team (GREAT) and Lewis-Burke will host an Executive Board Special Session, “Getting Engaged in I-O Advocacy and Federal

Research Funding Opportunities.” The session will feature segments on SIOP’s investment in government relations and advocacy and how to engage as a SIOP member. In addition, SIOP members with extensive experience working in and applying to federal agencies that fund scientific research will provide guidance on successfully applying for federal funding. The session is Saturday, April 29, from 11:30 am to 12:20 pm, in Asia 2.

Also, visit GREAT and Lewis-Burke in Committee Zone (date and time TBA) to share feedback and ask questions! We look forward to seeing you at the Annual Conference.

### **SIOP Members Spotlight: HumRRO Hosts APA “Stand for Science” Congressional Visits**

In our third *TIP* feature of SIOP members engaging in government advocacy work, **Gavan O’Shea** (HumRRO) describes his work with HumRRO colleagues hosting APA “Stand for Science” visits with Kentucky senators. To tell us about your own advocacy-related work, please contact current Government Relations Advocacy Team committee chair, Jill Bradley-Geist: [jill.bradley-geist@uccs.edu](mailto:jill.bradley-geist@uccs.edu).



Beth Bynum, Congressman Yarmuth, Gavan O’Shea, and Matt Trippe

met with staff working in the local offices of Kentucky’s senators: Whitney Meadows (Louisville Field Representative for Senator Rand Paul [R-KY]) and Andrew Condia (Louisville Field Representative for Senate Majority Leader Mitch McConnell [R-KY]). In late August, they hosted Congressman John Yarmuth (D-KY), the U.S. Representative for Kentucky’s 3rd congressional district.

During each visit, Gavan, Matt, and Beth highlighted some of HumRRO’s federally funded research and its impressive impact. Each example they shared focused on a project that began as an applied research effort, showed promise through impressive validity results, and was eventually used operationally. One line of research they described focused on the development of new assessments that have helped the Army identify the best candidates for selection into the Reserve Officer Training Corps. These assessments are currently being used to make scholarship decisions. In addition, they highlighted the creation of the Joint Service Cyber Test, which is being administered by multiple service branches to

Several SIOP members have recently helped educate Congress about the value and impact of behavioral science research, including I-O psychology, through the American Psychological Association’s (APA) “Stand for Science” initiative. Through this initiative, APA helps psychologists share vivid, real-world examples of their applied research that convincingly illustrate to policymakers why psychological science deserves federal support. Gavan O’Shea, Matt Trippe, and **Beth Bynum** hosted several congressional visits at the Louisville, Kentucky, office of the Human Resources Research Organization (HumRRO) this past summer. In June, they

thousands of applicants each year to select the best entry-level “cyber warriors.” They also shared a hands-on demonstration of HumRRO’s rich-media online assessment capabilities and discussed the wide-range of federally funded psychometric, quality assurance, and validity work HumRRO performs in the personnel assessment and educational domains.

If you are interested in learning more about the program, you can visit APA’s “Stand for Science” website (<http://www.apa.org/about/gr/science/stand-for-science.aspx>). APA helps to prepare members to host these visits, including providing a short video-based training session and the opportunity to speak with APA staff about any questions or concerns you may have. APA also provides handouts that you can share with congressional visitors, including a fact sheet describing the National Science Foundation’s Directorate of Social, Behavioral, and Economic Sciences (SBE) and detailed information about research funded by NSF and the National Institutes of Health (NIH) within your state. As always, GREAT and Lewis-Burke are also resources to discuss and learn about advocating for I-O and how your efforts complement those of the Society.

### ***Lost in Translation: Talking I-O With Policymakers and Funding Agencies***

**Andrew B. Collmus and Michael L. Litano**  
**Old Dominion University**

#### ***Description of Present Column***

Whether pursuing a career as a scientist-practitioner or continuing to ascend the ranks of academia, early-career I-O professionals are likely to be in a position in which they must translate I-O specific topics to members of legislature. Acquiring grant funding is a near necessity to obtain tenure as an I-O professor, and the federal government is one of the leading employers of I-O psychologists, either as civil servants or via contract work (SIOP Member Salary Survey, 2016). A crucial aspect of success as an I-O professional lies in our ability to effectively communicate *why* we should be granted federal funding and *how* our research can influence federal policy related to the workplace. As a result, we sought to understand the intricacies of I-O translation when communicating with members of the federal government. We interviewed three esteemed I-O psychologists who each have demonstrated expertise and achievement in these areas: **Denise Rousseau**, **Debra Major**, and Lorenzo Galli (see biographies below).

The remainder of this column is structured as follows. First, we map the current interviewees’ responses onto the table of practical recommendations for effective I-O translation that we developed in column 2 of this series and discuss the unique applications of such strategies when communicating with federal policy makers and funding bodies. Next, we highlight the interviewees’ experiences that are unique to translating to these audiences and relay their advice. Finally, we close by discussing ways for the I-O community to be more effective in this area and share translation-related resources recommended by the interviewees.

### ***Translation Themes in Communicating With Policymakers***

#### ***Understand your Audience***

After our three interviews, we were pleasantly surprised by how well our original set of translation recommendations applied to the current topic. All three interviewees emphasized the importance of

understanding your audience regardless of who you are communicating with. Dr. Rousseau noted, “whether communicating science to practitioners or policy makers, it’s all in the eye of the beholder... what the person is interested in and how they think about problems.” She continued by distinguishing between using I-O to diagnose or understand a problem and using I-O to solve a problem that one already knows that s/he has, stressing that understanding that policy makers are looking for the latter is the first step to translation.

I think one of the first issues in the translation process is to think about what needs end-users might have, and how to help them know if the research area we are describing is likely to be relevant to the potential problems they’re dealing with. What I feel the first issue in trying to communicate to both practitioners and those in the federal government is to help them map the likely problem spaces that the area of research we’re working on might apply to. I think often people have a solution-orientation, but I have learned that diagnosis and problem identification may be more important to the subsequent process, because if they get that right or reasonably well identified, what comes after that is likely to be much more effective.

Dr. Major built on this insight, recognizing that although what it means to be an effective translator when communicating with federal policy makers and funding agencies may vary, no matter the audience, one needs to communicate how s/he can help solve problems that they find important.

Oftentimes you are connected to (funding agencies/ policy makers) because they need help fixing something, changing something, or understanding a problem at hand... with respect to funding agencies, there’s a very important need to explain the value of I-O psychology relative to the problem because it’s not uncommon for (members of one discipline) to look (within their discipline) when researching issues in their field... it’s important to communicate how we can help them understand their problem.

### ***Simplify the Presentation of Information***

After understanding your audience—their needs, their problems, their desired outcomes—it is essential to simplify the presentation of information in effective I-O translation. In fact, the intention of Lorenzo Galli’s nonprofit, *ScienceForWork*, is to do just that.

*ScienceForWork* is a nonprofit that provides decision makers with trustworthy and useful insights from organizational and management science. Decision makers often make decisions based on professional experience or the interests of stakeholders. *ScienceForWork* aims to make high quality information from I-O science available to them—we take the most relevant studies, usually meta-analyses, and appraise their trustworthiness, then summarize the findings in plain English. To make sure that anyone can understand these studies, we strip the technical jargon, increase their visual appeal, and make them easy to read and understand so they can talk to their colleagues and fellow policy makers about it. We try to get all the quality and reliability of scientific research into a 5-minute reading. We also include a lot of tips for how to put into practice what you have just learned.

Mr. Galli also identified some other ways to simplify the presentation of information when translating I-O, including visualization and storytelling.

Use graphs, diagrams, et cetera. Make effect sizes visual, because data and numbers alone won’t help your audience understand the impact of what you are proposing. Use references—so they know where to look if they want more information—and use stories because people can always relate to stories. We use narratives in our heads to understand different situations, problems and

opportunities. We make emotional connections through stories. And so, the idea is that you can use success and failure stories to make examples of how the evidence works in real life. And when you tell a story, people will say “Yes! I have experienced that as well” or “I can relate to that,” and then they will understand the evidence better.

Dr. Rousseau, who sits on the advisory board for the Behavioral Science and Policy Association (BSPA), states that the goal of her organization\* is to, “produce intellectual information in ways that can easily be disseminated and understood, that is readily available to people in Washington and other centers where researchers and policy makers can engage in these conversations.”

Dr. Major furthered this conversation on simplifying the presentation of information both to funding agencies and policy makers. With respect to the former, she described the approach she takes when applying for grant funding:

I think you have to stay rooted in the strong science that distinguishes our field from people who do work based on intuition or prior experience, and the unique (methods) that we have to offer. At the same time, I think we need to combine that with a compelling narrative. When I am writing a grant proposal for NSF, I always have those things in mind. The up-front part of the proposal is the compelling story - engaging them in ‘here’s the problem, this is why it’s important, and this is how the theory and the constructs I want to study are going to help address this problem.’ And then, there’s the part where we explain how we’re going to do this – and that is the rigor in terms of research methods, measurement, data analyses. Funding success is based on having both. I would say there are situations in which you’ll be called to emphasize on one more than the other, but both are fundamental.

Dr. Major represented SIOP at the 2016 Coalition for National Science Funding (CNSF) Capitol Hill Exhibit. In addition to networking with other scientists, she also had the opportunity to communicate the importance of her research to key members of federal funding agencies and members of Congress.

When France A. Córdova, the director of NSF, stopped by my goal was to share my research in a manner that highlighted the value of I-O. I focused on sharing compelling findings that align with the goals of NSF. Ultimately, I wanted to demonstrate how funding the research had been money well spent. Congressional representatives and their staffers wanted synopses and soundbites that could be shared with either their constituents or their fellow congressmen. Some saw links to personal experiences. One congressman told me that his daughter was majoring in math, and he felt that she was encountering some of the barriers that my research was uncovering. Making that connection provided an opportunity to emphasize the importance of continuing to fund this type of research.

### ***Building Trust and Quality Relationships With Policymakers***

In addition to the two broad themes discussed above, the interviewees drew attention to some unique themes and challenges that did not previously emerge in past interviews. The idea of building trust and quality relationships with numerous stakeholders manifested in each of our interviews. Dr. Rousseau specifically noted that the general idea behind the BSPA is that the fundamental transfer of information happens through quality relationships

The focus of the BSPA is to build quality relationships between researchers and policy makers to begin having a network of people with interests in communicating with each other and understanding the

different spaces... Part of it is to build relationships around tasks. You find areas where policy folks already are, or have put effort into and you use that as a basis for a conversation about potential research hooks... I think the idea with the BSPA is: even though we are producing an intellectual product in different ways that can be easily disseminated, it's also about being available to people in Washington and other city centers where we can convene policy makers and researchers so those conversations happen.

### ***Special Challenges in Public Organizations***

Working with the federal government presents unique challenges that an I-O professional might not consider or realize:

- The diffuse nature of decision making in public organizations: It is often difficult for individuals to commit their organization to a course of action—although they may really want to.
- policy makers and funding agencies have limited resources and are accountable for public money.
- They ask us very specific questions, and as I-O psychologists we usually end up saying “it depends,” and the decision makers and policy makers generally do not like uncertainty.
- Often others parties are trying to sell them an easy answer.

These unique challenges highlight the need for persistence and patience for I-Os hoping to affect federal policy and funding decisions and also stress the importance of simple communication that summarizes key findings relevant to policymakers’ immediate needs.

### ***Summary***

Most translation best practices are transferable to government settings. Our interviewees emphasized the importance of building trust and high quality, long term relationships in addition to previously identified best practices. In our next two columns, we will be building on the idea of simplifying the presentation of information by synthesizing interview responses related to effective verbal and visual communication of validity evidence

**Table 1**  
***Resources for Science Communication to Policy Makers***

<b>Resource/link</b>	<b>Description</b>
<a href="#">Alliance for Useful Evidence</a>	UK-wide network that promotes the use of high quality evidence to inform decisions on strategy, policy, and practice.
<a href="#">Behavioral Science &amp; Policy Association</a>	Global community of public and private sector decision-makers, behavioral science researchers, policy analysts, and practitioners who promote public application of behavioral science research.
<a href="#">Center for Evidence-Based Management</a>	Nonprofit organization dedicated to promoting evidence-based practice in the field of management and leadership
<a href="#">Coalition for National Science Funding</a>	Alliance of over 100 organizations united by a concern for the future vitality of the national science, mathematics, and engineering enterprise.
<a href="#">Handbook of Principles of Organizational Behavior (E. Locke)</a>	Resource with many practical examples of I-O theory in an applied setting



<a href="#">Nesta</a>	Foundation that supports new ideas in education, healthcare, the arts, technology, and economic policy.
<a href="#">SciCommHub</a>	Community and collection of resources focused on science education, outreach, and communication.
<a href="#">ScienceForWork</a>	A nonprofit that provides decision makers with trustworthy and useful insights from organizational and management science

\*Note: When discussing the mission of the BSPA, Dr. Rousseau heavily stressed the importance of Sim Sitkin’s leadership and vision.

### ***Interviewee Biographies***

Lorenzo Galli is the Founder of ScienceForWork, a nonprofit association that provide decision makers with trustworthy and useful insights from the science of organizations and people management. He also works at Mercer, where—as a behavioral scientist and consultant—he specializes in integrating science and practice to create evidence-based HR solutions.

Dr. Debra A. Major is an eminent scholar and professor of Industrial-Organizational Psychology at Old Dominion University. She serves as the graduate program director and associate chair for Research in the Department of Psychology. Her research, which broadly focuses on barriers to career development for women and minorities in science, technology, engineering, and mathematics (STEM) has received continuous funding from the National Science Foundation for nearly 15 years. In April 2016, Dr. Major represented SIOP at the 22nd annual Coalition for National Science Funding (CNSF) Capitol Hill Exhibition in Washington, D.C.

Dr. Denise M. Rousseau is the H.J. Heinz II University Professor of Organizational Behavior and Public Policy at Heinz College and the Tepper School of Business, Carnegie Mellon University. She is the faculty chair of the Health Care Policy and Management program. In 2007, Dr. Rousseau founded the Evidence-Based Management Collaborative: a network of scholars, consultants, and practicing managers to promote evidence-informed organizational practices and decision making. Its outreach today operates as the Center for Evidence-Based Management ([www.cebma.org](http://www.cebma.org)). In addition to serving on the advisory board for the Behavioral Science and Policy Association, Dr. Rousseau has developed several online Open Learning Initiative training modules related to evidence-based management ([oli.cmu.edu](http://oli.cmu.edu)) freely accessible to the public.

### **Learning About Learning: Trends in Workplace Training**

**Amy DuVernet and Tom Whelan**  
**Training Industry, Inc.**

As we’ve discussed in previous columns, the overlaps between corporate learning and development (L&D) and I-O are as common as they are obscured. That’s why this column ostensibly exists, to (hopefully) help I-Os gain some context for conversations with our kinfolk in L&D. To that end, in the next two installments of Learning About Learning, we’re focusing on the trends in training from both L&D and I-O perspectives.

In doing so, we’ll highlight areas that overlap and those that are misaligned in terms of focus. Sometimes, the “hottest new thing” in L&D is an approach to learning that I-Os have been researching

for over a decade. Other times, the latest and greatest fashions in L&D don't even show up on the I-O radar. But we're stating the obvious here; the scientist-practitioner gap in all its forms isn't exactly breaking news. Two of the most salient points of departure are the frame through which the endeavor of training is interpreted and the level of analysis of greatest interest. I-Os are interested primarily in learner reactions and behavior, and how people's attitudes and personal characteristics relate to elements of the design and delivery of training across organizational contexts. The objective is to understand what makes the interaction between learners and training content most effective, with the implication that such insights can be incorporated into applied contexts to drive organizational effectiveness as part of a larger system of recruitment, selection, succession planning, and so on. On the other hand, those in corporate L&D are mostly interested in the organizational results of training initiatives and what contributes to return on investment and lower training costs. The objective here is to understand what drives outcomes at the organizational level through delivering a "best-in-class" training experience (or at least attempting to) that incorporates the latest market intelligence insights and learning tools. So, the end goal is similar on both sides of the fence, but the path taken to understanding and improving training can manifest very differently. Accordingly, the pattern of trends between I-O and L&D reflect these differences in perspective, but as we will hopefully illustrate over the course of this two-part column, there are many similarities and much to inform both sides about the cumulative training landscape. (Yes, we grossly oversimplified the dichotomy above, we know that exceptions abound.) In this column, we'll begin by exploring trends in training from the corporate L&D perspective.

### **What's Trending in the Corporate L&D World?**

To get a feel for the trends impacting L&D practitioners, we reviewed the 2017 trend predictions of numerous L&D professionals and organizations that have some of the largest footprints in the world of corporate L&D. We also conducted a text analysis of four major L&D conference programs: [ATD's 2017 International Conference and Expo](#) (ICE), CLO's 2016 Symposium, [The eLearning Guild's 2017 DevLearn](#), and [Training Industry's 2017 Conference and Expo](#) (TICE). Table 1 (click [here](#) to view) presents a summary of both. In reviewing these trends, four dominant themes emerged:

1. the need to customize training content and experiences to meet individual learners' needs;
2. an emphasis on accommodating changes in learners' expectations;
3. new technologies driving innovations; and,
4. the use of multiple modalities to deliver training.

These trends make it clear that the landscape of learning is changing and that these changes are primarily driven by innovations in technology and the expectations with which workers approach learning. We'll highlight some of these trends below, providing information about relevant research and the role that I-Os can take in understanding their impact on learner and business outcomes.

### **Accommodating Changes in Learner Expectations**

Today's workers are exposed to information from a multitude of sources. Answers to their questions are available at the tips of their fingers via Google and other search engines. Learners are empowered to solve their own problems and fill their own knowledge and skills gaps using these tools. Moreover, their interactions with social media sites and other digital platforms have led them to expect engaging and entertaining experiences.

Thus, they bring with them expectations, preferences, and habits that impact the way they learn (or, at least, the way they *think* they learn). To accommodate these expectations, training departments are

moving toward more demand-based, participant-driven learning initiatives that allow learners to access content on demand at the time of their need. They're also incorporating delivery mechanisms designed to capture learners' attention such as microlearning, gamification, and storytelling into their training programs and portfolios to facilitate learning in spite of the many other distracting factors vying for learners' attention.

Microlearning breaks content into small learning objects, allowing learners to easily hone in on what's most relevant as they need it (Harward, 2015). Providing content in smaller, easily consumed chunks seems intuitively beneficial, based on the well-worn concept of spaced versus massed practice (e.g., Garrett, 1940). But although proponents extol the value of microlearning for providing just-in-time training (Patten, 2016), we know of no published research demonstrating its positive impact in comparison to other, more traditional approaches (e.g., longer programs that deliver multiple learning objects at a time). Although we located one empirical study investigating the optimal size of microlearning objects (i.e., smaller is better; Matthews, Hin, & Choo, 2014), research is certainly needed to identify the necessary conditions for achieving positive learning outcomes while better explicating the impact of both content type and the delivery modality.

Training organizations are also incorporating various engagement mechanisms, such as gamification and storytelling, to create a rich user experience that's captivating and mimics their interactions with other popular platforms. Gamification applies gaming mechanics to training contexts in order to motivate learner interaction (DuVernet & Popp, 2014). Unlike microlearning, gamification has received a sizable and growing attention within the research literature. Research has demonstrated the positive impact of gamification on learner reactions (e.g., Taylor, 2014) and motivation (e.g., Landers, Bauer, & Callan, 2015), and continues to investigate the circumstances under which these positive outcomes are realized (e.g., Landers & Armstrong, 2015). Interested readers are directed to an in-press issue of *Computers in Human Behavior* focused solely on gamification.

Storytelling paints a vivid picture, enhancing learners' connections with the trained material, with the goal of increasing their retention of training knowledge and skills (Harward, 2015). The objective is to illustrate applications or recount past successes or failures through business-relevant narratives, thereby grounding an abstract concept in a concrete example. Although anecdotal evidence of its effectiveness abounds (e.g., Beigi, 2014), research in this area has generally focused on storytelling within organizations (e.g., Boje, 1991) rather than as a specific training technique. Research is needed to understand best practices for integrating this technique into trained content; I-O can add to this area by facilitating this effort.

### **Customizing Content**

The shift in learner expectations has also led organizations toward strategies for customizing content to meet individual learner's needs. Training organizations are adopting content curation techniques to sift through the sea of available content and provide direction in terms of the training opportunities that best address the types of skills and knowledge learners need to perform on the job and they are doing this in a more personalized way. Here we can bring our expertise in work analysis; training professionals have been playing the role of content curator for a while, but how well is that content matched to the demands of the role and the knowledge and skills of the learner? We have the opportunity to assist our L&D counterparts in this effort.

Adaptive learning uses algorithms to personalize content based on individual learner responses, so that each individual receives only the content he or she needs in order to acquire necessary skills and knowledge and is not required to consume content that doesn't address those needs or that he or she already possesses (Harward, 2016). Although some empirical work has examined the technical links inherent in adaptive learning (e.g., Hou & Fidopiastis, 2017; Pérez-Sánchez, Fontenla-Romero, Guijarro-Berdiñas, 2016), there are a great deal of unanswered questions about the impact of adaptive learning and best practices for developing and implementing the technique. I-Os have the opportunity to study this trend through our unique lens to consider the interplay between learner perceptions, motivational mechanisms, and diverse learning outcomes (e.g., time savings, job satisfaction, self-efficacy).

Another trend toward customization comes in the form of learning libraries, which training organizations are using to offer courses across a broad spectrum of topics. Using these diverse offerings, learning practitioners can choose to design targeted curriculums based on the specific knowledge and skills desired or place the learner in the driver's seat in terms of choosing courses to consume (Harward, 2016). Here work is needed to provide guidance on curation, including contextual variables to consider (e.g., job complexity, organizational culture) and the impact of individual characteristics on consumption patterns. The dynamics of learner interactions with these learning libraries are ripe for investigation and could provide insights about the learners themselves. For example, Xerox's learning platform tracks content consumed by learners and uses this information to identify high potential employees (Hearns-Smith, 2014); the extent to which this information is an accurate gauge of future outcomes is a worthy avenue for future research. Although learning departments have already begun implementing initiatives to provide learners with options for consuming training, it is yet to be seen whether and who will choose to pursue these options and if the provision of such latitude leads to greater learning outcomes.

### **Advances in Technology**

Many of the aforementioned trends are also driven by advances in technology that equip L&D professionals with enhanced features and tools. For example, machine learning and automation hold the promise of enabling training organizations to personalize user experiences with less manual input into appropriate learning paths. Both have received quite a bit of attention in the popular press recently (e.g., Magnacca, 2017; Smith, 2016) but are still in their infancy in terms of empirical guidance on their most appropriate use in training scenarios. Here our expertise in statistical methodologies gives I-Os an edge in studying and fine tuning the application of these technologies. As Landers (2017) explained, many of the concepts and techniques utilized in machine learning have direct parallels to those of our statistical methods.

Virtual and augmented reality have also garnered a great deal of buzz as methods of immersing the learner in training content (e.g., Duquette, 2016). Unlike some of the other trends, a body of research has already been conducted and generally points to positive outcomes (e.g., Cohen-Hatton & Honey, 2015; Ke, Lee, & Xu, 2016; Mitchell et al., 2011). However, the costs associated with utilizing virtual and augmented reality techniques in training have been largely prohibitive since their inception. As these tools become more accessible, our role should be to translate the research already conducted to ensure these techniques are matched to appropriate training purposes (e.g., not implemented simply for the sake of making training "cool") and incorporated in ways that feel natural and enhance learning.

### **Multiple Modalities for Training Delivery**

Finally, advances in technology have also made the choice of delivery modality more complex. Just in the past 10 years, the options for computer-mediated training have exploded, and cross-platform compatibility (e.g., phones, tablets, personal computers) has increasingly become a necessity rather than a “nice to have.” The use of multiple and blended delivery modes, such as mobile, video, and simulation-based training, allows learners to consume information via the platform they prefer. The ability to deliver training content through an assortment of technologies has provided organizations with a vehicle for delivering training as learners need it, regardless of their location, and provided mechanisms for reinforcing content learned in more formal arenas (e.g., instructor led training classrooms; Harward, 2016). Although research has investigated the match of different modalities and combinations of modalities with the knowledge and skills trained (e.g., Arthur, Bennet, Edens, & Bell, 2003), work is needed to understand the optimal number and combination of these commonly used delivery modalities. This is particularly true given the majority of organizations report that they’re already using between three and six modalities to deliver training (Training Industry, 2016).

## Takeaways

I-O researchers and practitioners have the opportunity to apply our characteristic rigor and methodology to investigate (or continue the research on) whether or not these trends live up to their hype. Hopefully this installment of our column has helped to shed light on the ways that we can do this by working with L&D professionals to realize the promises of popular trends. If you’d like to discuss these or other trends further, we hope you’ll join us to continue our discussion of training trends at the 2017 SIOP conference in Orlando, where Amy and **Tara Behrend** will be hosting a community of interest discussion on L&D trends on Thursday at 1:30 p.m. Stay tuned for our next column, which will discuss trends in training research from the I-O perspective; taken together, we hope these two columns will provide a pulse on what’s happening in the world of training and an understanding of how we can better bridge both the practitioner–academic disconnect and the gap between I-Os and L&D professionals.

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### Social Media Posts

- Twitter: The landscape of #learning is changing; read about the latest trends in #learning and development. #LandD #training #IOPsych @AmyCPTM
- Facebook/LinkedIn: Modern learners are empowered to solve their own problems and fill their own knowledge and skills gaps. Read about the trend toward learner-driven training.

**TIP International Practice Forum:  
The Licensure Issue in Industrial-Organizational Psychology: Recent Ongoings Within Canada**

**Lynda Zugec**  
**Chair, Canadian Society for Industrial and Organizational Psychology (CSIOP)**  
**Managing Director, The Workforce Consultants**

and

**John L. Michela**  
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The registration/licensure of industrial-organizational psychology is a topic that is discussed globally. Typically, the details are conferred within the context of a particular country, as the practice of industrial-organizational psychology is usually guided by specific jurisdictions which differ depending on geographic region.

The issue of registration/licensure as it is currently being deliberated in North America is one that is near and dear to many of us involved with industrial-organizational psychology in Canada. The consequences of any potential regulatory changes could be profound and Canadian regulatory authorities, like any others, may be cued by other jurisdictions, including those within the United States concerning standards and requirements.

Of particular concern to the Industrial-Organizational Psychology community in Canada has been the possibility that recent developments could lead to mandatory licensure. Accordingly, a discussion which took place at the 2016 Canadian Psychological Association (CPA) conference during an industrial-organizational (I-O) psychology roundtable, coordinated by **Blake Jelley** on the registration/licensure of I-O psychology, highlighted our need to poll the Canadian Society for Industrial and Organizational Psychology (CSIOP) membership to obtain their perspective. The results of the **CSIOP membership** poll indicate that **over 89% of respondents are against mandatory licensure.**

Of the **past CSIOP Chairs, 21 out of 22 are against mandatory licensing.**

Once receiving this feedback from our membership, the CSIOP executive committee asked Past CPA President **Kevin Kelloway** to put forth the following motion for consideration to the CPA Board of Directors:

With respect to the practice of I-O psychology, individuals possessing the appropriate educational and experiential qualification (as determined by the regulatory authority/licensing board in their jurisdiction) should be eligible for **voluntary** registration/licensure. Such boards should consult with the I-O community to determine appropriate standards for registration/licensing. There should, however, be no requirement that I-O practitioners be required to register or be licensed in order to practice their profession.

The above motion was approved by the CPA Board of Directors in November 2016. This motion is also consistent with SIOP's current and formal stance with regard to licensure.



The CSIOP executive committee also recognized that not all I-O psychology academics and practitioners who work primarily in Canada are members of CSIOP. Thus, in an effort to reach out to **all I-O psychology colleagues across Canada who are not members of CSIOP**, the CSIOP executive committee conducted a second poll. We reached out to I-O psychology related organizations, academics and practitioners alike, to allow them to provide their perspective on the issue. The results indicate that **over 96% of respondents are against mandatory licensing**.

Subsequently, the CSIOP executive also invited formal statements from I-O psychology faculty, individuals, and groups concerning the registration/licensing of I-O psychology. The statement from the I-O psychology faculty group at the University of Waterloo is reproduced here as a way of summarizing some key points that have been salient to the CSIOP executive and, perhaps, a majority of the polled members with regard to registration/licensure.

Our six-member faculty in I-O psychology unanimously recommends against a licensing requirement for everyone who claims to be engaging in I-O psychology practice. Voluntary licensing may have value to some service providers or their clients. Mandatory licensing, however, is unnecessary and most likely would impose very significant costs to service providers, business clients, and members of society overall, including as taxpayers.

With respect to necessity, it is unnecessary because the clients for I-O psychology services are fundamentally different from the individual members of the public who need the protections afforded by licensing or other certification of physicians, dentists, psychotherapists, and other such professionals who serve unsophisticated individuals. Businesses, in contrast, can reasonably be left with the responsibility to choose service providers—whatever they may call their services—competently.

With respect to costs, the costs to service providers would have to be passed on at least to some degree to business clients, which creates an economic cost to society overall. Further economic and social costs would accrue as the skill sets of I-O psychology became less utilized, and thus the economic and social value of this utilization became less realized. We predict less utilization because some students will choose less onerous training and practice in “human resource management” instead of “I-O psychology.” In HRM programs, students do not learn the same skills and thus ultimately are not able to provide all of the same services—some quite specialized—that are provided after I-O psychology training.

Taxpayers support universities in all Canadian provinces and in all of the 50 states of the US. It seems inescapable that mandatory licensing for I-O psychology that mirrors licensing for clinical psychology will lead to imposition of training requirements in universities’ I-O psychology graduate programs. The resulting costs are very high in clinical psychology, so significant cost increases for I-O psychology programs are predictable as well. These costs will be borne at least in part by taxpayers. Given that the supposed beneficiaries of licensing—businesses—actually will not benefit but, instead, will incur pointless cost—taxpayers, too, will incur pointless cost.

Considered in conjunction, the survey findings indicate that there is a clear sentiment **against mandatory registration/licensure** of I-O psychology in Canada.

What are the perspectives on the registration/licensure of I-O psychology in your country or region? What has been happening in your jurisdiction? Are you in agreement or disagreement with recent

developments regarding registration/licensure? Provide us with your input so that we can share your thoughts!

WE ARE LOOKING FOR YOU AND YOUR INPUT! We are calling upon you, the global I-O psychology community, to reach out and submit topic ideas for future columns. Give us your insights from lessons learned in your practice. We are always seeking global contributors!

To provide any feedback or insights on the International Practice Forum, please send an email to the following address: [Lynda.Zugec@TheWorkforceConsultants.com](mailto:Lynda.Zugec@TheWorkforceConsultants.com)

**The Versatile Graduate Student:  
Using Extra-Role Activities to Increase your Job Marketability**

**Grace Ewles, Thomas Sasso, & Jessica Sorenson  
University of Guelph**

*“To ensure the success of our students, it is increasingly clear that universities need to ensure not only that our graduate students are well trained in their specific discipline, but that they must develop “transferable skills” to succeed regardless of their ultimate career path.”*  
- Allison Sekuler

There has been a global recognition of the increase in doctoral degrees conferred with comparatively few professorships and academic positions becoming available. Associations such as The Canadian Association for Graduate Studies are noting large discrepancies between the supply and demand for new professors (Sekuler, 2011). This calls into question dominant models of graduate education as training the future professoriate. Industrial and organizational psychology is perhaps well situated as a field to be less concerned about this trend. After all, many students who enter graduate training in our field do so with the intention of careers in consulting, human resources, or governmental and nonprofit work. As such, this month’s TIP-Topics column aims to provide guidance for graduate students looking to develop or enhance competencies deemed critical for I-O practitioners outside academe.

It is our position that given the employment context, and the limited likelihood of change in the years to come, graduate students must work to develop and enhance transferable professional skills to increase their job marketability. Although there are a significant number of skills trained in traditional graduate education, which are transferable to roles outside of academia (e.g., critical thinking, research methodologies, presentations), we propose that some transferable skills are not typically developed to the same level.

In 2015, *TIP* provided its readership with a series of articles outlining the competencies identified as most central to different careers for I-O psychologists. In Zelin et al.’s (2015) article on competencies for consultants, “participants rated some of the competencies as learned most often in graduate school across all levels, whereas other competencies were mostly learned on the job” (p. 127). To demonstrate appropriate job readiness, graduate students must take the initiative to develop KSAOs outside of formal graduate training in order to be competitive in the job market.

With this in mind, we present a toolkit for building these competencies, including a table, goal-setting action plan, and a list of potential activities to support your development.

### Toolkit Description and Utilization

The table below was developed using an integrative and reflective process based on previous work by Zelin et al. (2015). Using the identified competencies for I-O practitioners outside of academia, we selected 10 competencies that can be developed outside of typical graduate education. For each competency, we utilized the Canadian National Occupational Classification (NOC), the Occupational Information Network (O\*Net), and relevant literature to provide descriptions and indicators demonstrating the evolving nature of each competency from initial capacity to mastery. The indicators provided are used as sample reference points; there are additional mechanisms available to determine your current level on a given competency, including significant self-reflection, seeking feedback from others, and using research to guide your self-assessment.

In order use the table, note the competency you wish to develop and estimate your current level of ability using the sample indicators; this information will be used to help develop your personal action plan! If you require additional information to determine your current level of each competency, we suggest utilizing other resources, such as the NOC or O\*Net to support your decision. It is important to note that you may fall below the identified indicators. This is perfectly fine; the competencies in this column are not always emphasized in graduate education and everyone has to start somewhere. This process will filter into your use of the action plan. Specific instructions for the action plan are noted below.

Competency	Description	Level	Example Indicator
<b>Strategic Thinking</b>	Envisioning a future state and developing strategies, goals, objectives and action plans to achieve it.	1-Low	Identify where you are within the organization's big picture and how you impact the larger strategy.
		3-Medium	Analyze business trends within the industry and sector in order to assess implications on business strategy.
		5-High	Establish a long-term mission and vision in order to set shorter-term priorities and goals.
<b>Global Citizenship</b>	An active approach to understanding and embodying principles of social responsibility, global competence, and civic engagement that are integrated into one's behaviours and attitudes.	1-Low	Awareness and acknowledgement of social and global inequalities and the unique experiences of diverse populations.
		3-Medium	Working within current systems and utilizing pre-existing solutions to engage in social change and movements (e.g., participating in your organization's at-risk youth mentorship program.)
		5-High	Developing new initiatives that target specific social and/or global issues and engaging others in the process.
<b>Advising &amp; Consulting</b>	Utilizing evidence, experience, and	1-Low	Prepare recommendations based on empirical evidence.

	expertise to help guide and advise the decision-making process.	3-Medium	Consulting with relevant stakeholders to determine solutions.
		5-High	Empower organizational members to take leadership in discussing issues, coordinating activities, or enacting change.
Competency	Description	Level	Example Indicator
Promoting & Selling	Using influence strategies to communicate value associated with products, services, or ideas.	1-Low	Identifying services or products based on a specified client need.
		3-Medium	Evaluating sector or industry needs for a service or product.
		5-High	Demonstrating the value of additional products or services to the client not initially considered.
Relationship Building (Networking)	Fostering and maintaining relevant collaborative relationships.	1-Low	Establishing connections within immediate network (e.g., within home department).
		3-Medium	Recognizing potential new connections within broader network. Maintaining connections with pre-existing network.
		5-High	Purposefully seeking new relationships, connections, or partnerships. Leveraging relationships to create new connections for others within your network.
Political Savviness	Utilizing relevant relationships and resources to support initiatives, goals, or develop opportunities.	1-Low	Identifying influential members of your network.
		3-Medium	Establishing opportunities for mutual benefit.
		5-High	Utilizing power dynamics and your spheres of influence to leverage connections in support of personal or organizational goals.
Conflict Management	Guide interpersonal interactions to promote healthy and productive relationships.	1-Low	Minimizing immediate conflict in situations without addressing or resolving underlying issues (e.g., tabling issues).
		3-Medium	Gaining multiple perspectives to generate solutions for immediate conflict situations.
		5-High	Proactively identifying areas where conflict may emerge and working to resolve issues before they occur for mutually beneficial solutions.
Delegation	Assigning tasks and responsibilities to others as part of a larger project.	1-Low	Assigning tasks to others based on their availability.
		3-Medium	Purposefully assigning tasks to others based on their skills, abilities, and expertise.

		5-High	Empowering and providing others with the opportunity for high-stake or complex roles within your project.
Competency	Description	Level	Example Indicator
Receiving Feedback	Receipt of task or situationally relevant information from others to support personal development or change.	1-Low	Receiving and reviewing feedback provided to you from pre-established feedback mechanisms (e.g., performance reviews).
		3-Medium	Critically self-reflecting on skills, abilities, and performance in order to set higher-order goals for your future efforts and personal development.
		5-High	Seeking out high-quality, reputable, multisource feedback from others to guide personal improvements.
Providing Feedback	Delivery of task or situationally relevant information to others to support their individual development or change.	1-Low	Providing specific, constructive feedback to others based on their demonstrated performance.
		3-Medium	Crafting personalized feedback that is meaningful for others, in recognition of their ability level, contextual factors, and capacity for change.
		5-High	Delivering thoughtful, constructive, and developmental feedback in a timely manner that is evidence-based and considerate of perspectives outside your own preferences.

### Extra-Role Activities To Support Your Development

To develop these competencies, we would like to offer you suggestions of various activities outside of traditional graduate education that can support your development. Some of the activities may develop multiple competencies simultaneously; likewise, competencies can be developed through multiple activities. For example, strategic thinking, global citizenship, and political savviness can be developed by participating in **student governance**, sitting on a **board of directors**, serving on a **community advisory group**, or through involvement in **nonprofit work** or **volunteering**. You might already be involved in some activities where you have overlooked the opportunity to develop these competencies further, such as **recreational sports**, **cultural clubs/festivals**, **theater/artistic/musical outlets**, **international conferences/forums**, **lobbying**, or any kind of **social activism**. Additionally, some graduate school adjacent activities, such as getting involved in **professional groups** or your **union**, helping with **conference organizing**, being involved in **interdisciplinary work**, as well as **networking events**, may offer unique opportunities to develop any one of the competencies listed above. The possibilities are endless; don't hesitate to use your current extracurriculars or create new opportunities to support your development!

### TIP-Topics Competency Development Action Plan

**Instructions:** To use this action plan, first identify the specific competency you would like to develop. In the spaces below, note your current level and the specific indicators you are using to make that assessment. Next, identify a specific goal or desired level you would like to achieve, as well as a timeline for this goal; writing them down in the spaces below will help you hold yourself accountable. Use this information to create specific actions that will help you achieve your goal and identify any potential metrics you would like to use to assess your progress (note: you may wish to use external resources to ensure accountability [e.g., coworker feedback]). Finally, use the last column as a check-in: Have you achieved your goal (Yes/No)? If not, what next steps will you employ to support your development? See below for an example.

To support your goal setting, ensure your goals are SMART!

Specific  
 Measureable  
 Attainable  
 Realistic  
 Time-based

Competency	Current Level	Goal (Desired Level)	Timeline	Actions to Achieve Goal	Metrics	Check-in & Next Steps
Relationship Building	<b>Level: 3</b>  <b>Indicator:</b> I am aware of potential new connections and the larger network; however, I focus my time on maintaining connections in my immediate circle.	<b>Level: 5</b>  <b>Indicator:</b> I would like to strengthen my current network by reconnecting with individuals and developing new connections.	April 2017 – December 2017	Reach out to individuals who regularly attend SIOP to set up meetings.  For those whom I am unable to connect with in person, I will reach out to via email or LinkedIn to check in.  I will create an excel file to track my network and how when my last contact was with each individual.	I will aim to connect with individuals in my network at least once every three months.	

**Create your own:**

Competency	Current Level	Goal (Desired Level)	Timeline	Actions to Achieve Goal	Metrics	Check-in & Next Steps
	<b>Level:</b>  <b>Indicator(s):</b>	<b>Level:</b>  <b>Indicator(s):</b>				
	<b>Level:</b>  <b>Indicator(s):</b>	<b>Level:</b>  <b>Indicator(s):</b>				
	<b>Level:</b>  <b>Indicator(s):</b>	<b>Level:</b>  <b>Indicator(s):</b>				

## Conclusion

As graduate students it is easy to get lost in the rigour of class schedules and research, but we cannot forget that our preparations for future careers are not confined by curriculum and program learning outcomes. If we want to strategically position ourselves for our ideal careers (whether academic, consulting, government, or otherwise), we cannot be passive in our development. We must critically self-reflect on our strengths and weakness, develop a plan of action to continue our skill development, and get involved in experiential and nontraditional activities that will be enjoyable and beneficial. Because everything is a learning opportunity.

Our next *TIP* column will be our last in our 2-year term. We will use this opportunity to encapsulate our time as *TIP* columnists and graduate students while offering our unique perspective on what the future may hold for our field.

As always, feel free to engage with any of the columnists over Twitter (@JessPSYC @grace\_ewles @t\_sasso).

## A Postscript From the Columnists on Recent Events

In an effort to be global citizens, and to use our platform as *TIP* columnists, we feel it is important to acknowledge recent sociopolitical events and their potential negative impact on graduate students. We recognize that now is a time when many individuals, for various reasons, may be experiencing additional stress. We encourage you to find ways to prioritize your self-care: Utilize your social support networks, avail yourself of the resources on your campus, and/or find ways to engage in positive social action. If you have the capacity, look to your colleagues and networks and see how others are doing. Many in our academic families may be silently struggling and an outreach of compassion could be a much-needed resource for others.

As global citizens, we also encourage all members of SIOP to reflect on the various privileges we may hold. Consider your country of origin, citizenship, race, ethnicity, educational background, gender, gender identity, sexual orientation, age, ability, health, marital/family status, class, creed, and record of offenses. How might individuals of different identities than yours be experiencing the world around them? What can we do to support those who are experiencing a harsher world than we are? Those of us with more privilege are called to use that power to dismantle the systems of oppression that operate around us. We encourage all members of SIOP to become more informed of global affairs and their impact on marginalized groups, academia, and the world of work.

## References

- Sekuler, A. (2011). Ecosystems for developing transferable skills. *2011 Strategic Leaders Global Summit on Graduate Education: Agenda 3 Papers*, 76-79.
- Zelin, A. I., Chau, S., Bynum, B., Carter, C., Poteet, M. L., & Doverspike, D. (2015). Identifying the competencies, critical experiences, and career paths of I-O psychologists: Consulting. *The Industrial-Organizational Psychologist*, 52(4), 122-130.



## I-O Outside I-O: A Quarterly Review of Relevant Research From Other Disciplines

Mark Alan Smith, CEB

Alex Alonso, Society for Human Resource Management

If you been under the most all-encompassing rock for the last 2 years, you might not know that politics play a large role in the national discourse around every topic. No matter one's leanings it is clear that much investment is made in trying to predict one act of national-level behavior and the motivations behind this behavior. Specifically, we are talking about voting and the motivations for voting: both why people vote and why they select a candidate on the ballot.

Political science/political psychology is the topic of the two focal articles. The first article looks at the name order effect on ballots (the *primacy* effect seems to really exist) and potential moderators of it. This effect can have misleading influences on voters and outcome of votes, as well as surveys and other tools that I-O psychologists typically use. The second article looks at general motivations for voting behavior and how moral foundation theory may provide insights into other kinds of behavior not previously associated with morality.

**Moderators of Candidate Name Order Effects in Elections: An Experiment. Kim, Nuri; Krosnick, Jon; Casasanto, Daniel, *Political Psychology*, 36(5), 2015, 525-542. doi: 10.1111/pops.12178**

In this recent article, the researchers studied the effects that the order of appearance on a ballot can have on the outcome of elections. The effects of name order have been known for a number of years: candidates often receive more votes when their names are listed first then when their names are listed after the names of their competitors. In fact, studies of real world elections in the US have estimated that the advantage of being listed in first position on the ballot (the *primacy effect*) is in the range of 2% to 3%.

This focal study sought to extend this finding by focusing in the moderators of this primacy effect. In particular, these researchers looked at some potential moderators, including:

- Amount of information provided
- Ambivalence: i.e., how conflicted the participants felt when making their votes
- Cognitive skills: education was used as a proxy variable
- Cognitive effort: i.e., how hard the participants tried during the candidate evaluation period
- Handedness: right handers v. left handers

### Method

Participants from a national sample of Americans in 2009 were used. Of the 1.4 million in the national survey panel, 83,986 were selected for participation. 2,069 chose to participate in the broader survey (2.5% participation rate), and 572 completed the questions for the study, which comprised the study sample.

Participants completed computer-based survey items which asked about two hypothetical candidates for the US Congress: "Alan Mitchell" and "Robert Swanson." They were shown varying levels of information about the candidates, and then participants "voted" for one of them. Additional questions gauged the information needed for the moderators.

### Findings

Results showed that there was an overall effect of being listed first on the ballot of 15.3%. Strong moderation was shown for amount of information; the primacy effect when little information about the candidates was presented was 28.3%, which the primacy effect when more information was presented was close to zero (1.7%).

Primacy was also much larger among participants who were more ambivalent about the candidate choices. Also, more educated individuals tended to have much less of a primacy effect, and individuals who reported putting in more cognitive effort had a smaller primacy effect.

Horizontal display of candidate choices led to an increase in the primacy when compared to a vertical display. Interestingly, right handers v. left handers also had a moderating effect on the primacy effect, but only when candidate names were displayed horizontally rather than vertically. Left handers showed a greater tendency toward the primacy effect than right handers when comparing horizontally.

### **Thoughts From an I-O Perspective**

In our opinion, there are a couple of main takeaways from this research for our field. The first involves the design and mechanics of surveys/ballots. Even without considering the moderators of the primacy effect, this study points to the conclusion that surveys should be designed to rotate the presentation of alternative choices. Although this would have been difficult when asking questions via paper surveys, such a rotation is relatively easy for many online survey platforms. Also, it is best to display choices vertically, rather than horizontally in order to help diminish the primacy effect.

Further, we should consider finding ways to reduce the primacy effects by focusing on some of the moderators in this study. Lack of information, ambivalence, lack of cognitive skills, and lack of cognitive effort all appear to lead to an increase in the primacy effect. Although we generally we cognitive skill as a fixed trait and ambivalence might be hard to change, we should be sure to provide enough information to survey participants in a way that is engaging.

As interesting as these findings might be, it is important to note that the effects of ballot presentation in real world conditions are rather small, just few percentage points. These results must be understood with these rather minute effect sizes in mind. After all, how often do important elections turn on just a few percent of the vote?

**Franks, A. & Scherr, K. (2015). Using Moral Foundations to Predict Voting Behavior: Regression Models From the 2012 U.S. Presidential Election. *Analyses of Social Issues and Public Policy*, 15(1), 213-232. doi: 10.1111/asap.12074**

Debates about the value of predictive analytics rage beyond the field of I-O psychology, and there is no more salient example of this than trying to predict voting behavior. Moreover, this debate proves itself valuable for other social sciences largely because it provides large-sample heuristic data with the ability to assess temporal changes and swinging motivations over one act. It provides insights into factors associated with decision-making processes, looks at core traits versus states held over extended periods, and examines the impact of antecedent components that lead to conditional waiving of held values. In our world, it is tantamount to looking at Project A data to examine noncognitive factors associated with choosing an employer all the while using a data set one million times the size.

### **Method and Findings**

In this series of three studies, Franks and Scherr explore the concept of “moral foundations” as a predictor of voting behavior as it relates to the 2012 presidential election. Of particular interest to I-Os are the treatment of moral foundations as mutable states versus intransigent traits. The literature behind moral foundation theory has consistently treated these as traits that sway when context is added to a given situation. Further, it has been long hypothesized that these moral foundations are potentially heritable.

In this research, participants responded to scales from multiple constructs ranging from political leanings to social attitudes about moral situations to basic demographic information. In the first study, researchers used moral foundations theory to identify potential underpinnings of a relationship between morality and behavior using a sample of 144 voters. In the second study, a representative sample from the American National Election Survey (ANES;  $n = 1107$ ) was used to identify a relationship between key factors like type of moral foundation and voting selection via a hierarchical logistic regression technique. In the final study, a sample of 200 participants completed measures aimed at linking moral foundations of the individual with subjective assessments of moral foundations of others.

Results from these three studies were used to examine the changing nature of moral foundations and also to identify a two-dimensional structure of moral foundations—individualizing foundations versus binding foundations. These foundations ended up predicting actual voting behaviors in the Presidential election above and beyond demographic variables. Upon further investigation, these concepts sound an awful lot like individualistic versus collectivistic orientations—something all I-Os know a lot about.

### **Thoughts From an I-O Perspective**

So how does this research affect the way I-Os should operate? Well, three things are abundantly clear:

1. Public policy research could use a refresher on social psychology and applied psychology (ask anyone who voted in the 2016 election about cognitive dissonance).
2. Franks and Scherr provide a novel way of reframing state versus trait debates but looking a context from a hereditary perspective, something we in I-O have seemingly ignored.
3. The researchers have also provided a series of implications for applying moral foundations to the prediction of counterproductive or self-destructive behaviors.

This last one has the most fertile ground for application in I-O as they unwittingly lay out a new way for predicting one-time bad behaviors in the workplace.

### **Practitioner Forum: An Update From the Professional Practice Committee**

**Will Shepherd**  
**Chair, Professional Practice Committee**

This is my second update as the chair of the Professional Practice Committee. I want everyone to know that you have a tremendous group of dedicated volunteers who are working on your behalf to develop some great resources for you. In this update I want to highlight:

- New Professional Practice page
- Professional Practice Update newsletter

- The Bridge: Connecting Science and Practice
- Reminder: Practitioner Network reception
- Speed mentoring
- Early Career Practitioner Consortium
- Assistant chair roles

### **New Professional Practice Home Page**

Bookmark it! We have created a new home page that aggregates a variety of SIOP resources that are valuable and relevant to I-O practitioners. Thanks to **Eric Bookmyer** for leading this work. Check it out (note: you must log-in with your SIOP user name and password):

<http://my.siop.org/ProfessionalPractice>

### **Professional Practice Update Newsletter**

Thanks to **Ben Porr** and **Meredith Ferro** for launching a new eNewsletter geared toward practitioners. See the first issue at: <http://www.siop.org/PPC/Newsletter/issue1.pdf>

### **The Bridge: Connecting Science and Practice series**

Column editors **Lynda Zugec**, **Craig Wallace**, and **Mark Poteet** continue their leadership on the new *TIP* series called “The Bridge: Connecting Science and Practice,” which has recently been focusing on winners of the SIOP-SHRM HR Impact award. The latest article is on Huntington Bank’s VOICE Colleague Engagement Survey and can be found at <http://www.siop.org/tip/jan17/bridge.aspx>

Please feel free to contact the column editors with any organizations or individuals that you feel may be good to highlight in a future Bridge article.

### **Reminder: Practitioner Network Reception**

You are invited to attend the first ever SIOP Practitioner Network Reception hosted by the SIOP Professional Practice Committee on Thursday, April 27 at 6 pm EST in the Southern Hemisphere IV ballroom in the Walt Disney World Swan and Dolphin Hotel.

Regardless of whether you consider yourself a practitioner, an academic, both, or somewhere in between, all are welcome! You can have a cocktail and appetizers while reenergizing your network and learning about the many resources the SIOP community can provide to all practitioners.

**Jerilyn Hayward** and **Donna Roland** have planned a really fun event with a special theme (hint: think “I-O, I-O, it’s off to work we go!”). We only have a 60 minute window so please arrive early!

### **Speed Mentoring**

The eighth annual Speed Mentoring Event will be held at the SIOP conference from 5:00-6:30 PM on Friday, April 28, in the Pacific B room at the Walt Disney World Swan and Dolphin Hotel. Refreshments will be served to help make this a relaxed and inviting atmosphere for knowledge transfer! The session includes two 30-minute roundtable discussions on specific topics guided by one or two mentors per table. Registration is required. Look for sign-up information coming in March. The program is being led by **Lynn Collins**, **Soner Dumani**, **Michael Pate**, **Neil Morelli**, and **Natalie Goode**. This year’s topics include:

1. Future Leaders and High Potentials
2. Innovations in Employee Selection

3. HR/Talent Analytics and Big Data
4. Creating and Implementing Healthy Workplace Initiatives
5. Developing Business by Selling Value
6. Internal Versus External Consulting
7. Diversity and the Changing Workforce
8. Driving a High Performance Culture
9. How to Create Your Professional Brand (Student Topic)
10. Transitioning From Student to Practitioner (Student Topic)

### **Early Career Practitioner Consortium**

This year, SIOP is expanding its offerings to include a special one-day program expressly designed to meet the career needs of Practitioners (nonacademic professionals) with 5 years or less experience after earning their degree (either PhD or terminal MA/MS). The first ever Early Career Practitioner Consortium (ECPC) will be offered the day before the official start of the 2017 SIOP Annual Conference in Orlando, FL on Wednesday April 26, 2017. You must register for the SIOP conference to participate in the ECPC. The cost of the ECPC will be \$95.00 in addition to the SIOP Conference registration fee.

**Vince Conte** and **Wendy Bedwell** are leading the ECPC which will provide participants:

- research and current trends in employment of I-O practitioners in a variety of setting
- self-assessments related to the latest SIOP models for I-O career paths
- learning and mentoring from seasoned professionals from a variety of work settings

We are grateful to the following SIOP members who are volunteering their time to the session: **Andrew Biga, Arlene Green, Beverly Tarulli, Elizabeth Kolmstetter, and Tiffany Poeppelman.**

Don't miss this opportunity to learn more about your career options, network with outstanding professionals, and plot your future direction for success! Registration will be limited to 40 participants so don't wait to register! As of this writing in early March, the ECPC was close to its capacity of 40 people.

### **Assistant Chair Roles**

As I near the end of the first of my 3-year term as SIOP PPC chair, I've learned more about all my various responsibilities for the overall project portfolio, strategic (e.g., long-term goal planning) and administrative (e.g., budgeting) components. There is a lot of important work for the PPC to do and to help me and the PPC become even more effective, we are adding a new role: assistant chair. There will be three assistant chair roles, and each will be assigned a portfolio related to the PPC's strategic goals.

- Professional Practice Knowledge Bank or Learning Resources (**Mark Morris**): the portfolio of current or future programs and projects related to helping practitioners perform their jobs, including webinars, white papers, research databases
- Professional Practice Career Development (**Steve Ashworth**): the portfolio of current or future programs and projects related to helping practitioners advance their careers, including mentoring and career development programs, career competency models, practitioner needs
- Professional Practice Communications (Ben Porr): the strategy and execution to ensure that our intended audiences know about and engage with the PPC

The three assistant chairs will serve as portfolio managers who provide support to the program managers who lead the various activities of the PPC. The assistant chair may assist program managers in various ways including: helping program managers secure the people/budget/resources needed to

accomplish their objectives; providing feedback and guidance as needed/requested to program managers; and ensuring there is a succession plan in place as “program managers” rotate off the PPC. Thank you to Mark, Steve, and Ben for taking on these expanded roles.

### Summary

A big thank you again to all the committee volunteers. See everyone soon in Orlando!

## Spotlight on Humanitarian Work Psychology

### From Corporations to Causes: The Demand for Humanitarian Work Psychology Shujaat Ahmed (Illinois Institute of Technology) and Morrie Mullins (Xavier University)

Hello, and welcome back to the “Spotlight on Humanitarian Work Psychology” column! You have probably noticed that there are a couple of new faces attached to the column this issue—well, one new face and one that’s been around *TIP* just a bit in the past. To offer a quick introduction, Shujaat Ahmed is the vice chair of the Global Organisation for Humanitarian Work Psychology (GOHWP) and a doctoral candidate at Illinois Tech. Morrie Mullins is a member of the GOHWP Executive Board and a former editor of *TIP*, and had the trajectory of his career altered by what he learned from reading about humanitarian work psychology (HWP) and SIOP’s UN team during his editorship. We are both thrilled to be writing for *TIP* and excited to help get the word out about HWP!

Our focus over the next couple of columns is going to be on issues of visibility. HWP is a relatively new area for many I-Os. In fact, one of the things that sometimes surprises graduate students in I-O is the level of connectedness the field has to nonprofits.

Now, that connectedness won’t surprise any regular readers of this column, because over the past few years the themes of HWP have been developed to great effect by **Stuart Carr, Lori Foster, Alex Gloss, Ashley Hoffman, Laura Sywulak**, and others—and those are some impressive shoes for us to fill! But many students seem to come to I-O thinking that it mainly deals with big corporate clients, and learning about HWP and the fact that an I-O career can mean working with nonprofits and NGOs can be both surprising and thrilling.

For this issue, then, our theme really is about getting to know HWP. Last time, Ashley and Laura shared the growth and current trajectory of GOWHP as an organization, but we want to go broader: How do you become familiar with this fascinating and rapidly growing domain as a graduate student or as a faculty member? We’ll offer our perspectives on how this can happen and how we’ve seen it happen from the views of both the graduate student (Shujaat) and the faculty member (Morrie). We’ll talk about how we learned about HWP, things that have excited us as we’ve learned about this area, and recommendations we have for how to talk about HWP with other graduate students and faculty members, including resources we might share with someone new to HWP. Finally, we’ll point interested readers to the wealth of information available on the GOHWP website (<https://www.gohwp.org>), much of which can be very helpful in getting to know HWP.

**Shujaat says...** Humanitarian work psychology (HWP) is a synthesis of various areas such as I-O and occupational psychology in an effort to improve human welfare for the greater good of all people. It’s been interesting to learn about HWP over the years. I first heard about HWP as a concept 2 years ago, through **Mahima Saxena**, an assistant professor at Illinois Tech who has done some work in this area.

Shortly after, I googled HWP and came across the GOHWP site, where I ended up reading more about the field. Laura Sywulak, Ashley Hoffman, **Drew Mallory**, and Stuart Carr were also extremely gracious in telling me more about HWP and GOHWP at SIOP last year. Although my main research interests lie within OHP, I found it exciting that there was so much overlap between the two fields (see our most recent [GOHWP newsletter](#) for the distinctions between OHP and HWP). Reflecting further, I began to realize that throughout my childhood, I had been engaged in some aspect of HWP without even realizing it, through raising funds for the poor and elderly and volunteering at old aged homes in India. This passion to bring greater awareness and end poverty has stayed with me to this day, as I want to conduct research with impoverished, low income individuals in India and around the world.

Although some of these aforementioned areas (e.g., volunteering, humanitarian aid work) fall within the larger HWP domain, it made me wonder if perhaps other students may not be aware of what HWP is and if they've been involved in it. So, I asked several I-O graduate students ( $N = 11$ ) across the USA and Canada some questions. I asked them if they knew about HWP, how they came to learn about HWP, and if they specifically applied to HWP-focused graduate programs. Of the 11 students interviewed, 4 or 36.4 percent didn't know at all about HWP. From the 7 students that were familiar with HWP, only 2 or 28.5 percent actually heard about it during their undergraduate career, where it was discussed in their curriculum! Both of these students also researched and applied to schools that had an emphasis on HWP, such as North Carolina State University and Portland State University. Meanwhile, the remaining students learned about HWP through people who did work in the field, whether it was in advocacy, SIOP committees, through GOHWP, or collaborative research endeavors.

The above findings really highlight the need to make HWP more apparent in the undergraduate curriculum so that students have an opportunity to decide if they would like to pursue a career in HWP. Further, SIOP could team up with GOHWP to continue bringing more awareness to HWP as it relates to I-O. Unfortunately, not everyone may read *TIP* or the GOHWP newsletter. So, perhaps a booth at the next SIOP conference may be a good way for all conference attendees to learn more about HWP and how they can be involved. Graduate programs can also invite speakers who do practical and academic work in HWP at their next brown bag seminar!

**Morrie says...** My personal journey to HWP is something I've talked about in abbreviated form elsewhere (Mullins, 2016), so I won't go into it in detail here. My process of "getting to know HWP" was this wonderful organic thing, wherein I realized that I'd found something special and meaningful, and wanted to share it with as many people as possible!

When I think about getting to know HWP, then, I think about how I introduce it to others. There are excellent books out there on HWP, which I'm always happy to recommend, but to get to know the field the short articles that have appeared in Stuart Carr's *Quo Vadis*, the iterations of this "Spotlight" column under Lori, Alex, and Ashley, and the reports from the UN team really provide a great introduction.

Not too long ago, I actually had to answer the question, "If I had to pick just two brief pieces to introduce readers to HWP, what would I choose?" I was integrating HWP, CSR, and prosocial behavior into one of my graduate seminars and in the process of building my syllabus had to pick two articles out of the many that have affected me.

The first was a gloriously polyauthored piece from the SIOP UN team, GOHWP, and representatives of the International Association of Applied Psychology ([Gloss et al., 2015](#)). The paper presented the (then newly adopted) UN Sustainable Development Goals (SDGs) and asked the question, "How should I-O

psychology respond?” Their conclusion contained text about I-O and its potential to contribute to the SDGs that is too good not to quote:

I-O psychology is closely linked to global development goals because (a) through the scientist–practitioner–humanist model, it can greatly assist the world’s greatest engine for economic growth and prosperity—the productivity and well-being of workers in the private sector; (b) it overtly considers the health and well-being of the world’s workforce; and (c) it has helped to assist the diversity of private-, public-, and civil-society organizations that explicitly support international developmental goals. (p. 136)

In other words, by doing what we do, but doing it in a different context, we can make a real contribution to goals designed to fundamentally improve life for all people. This is a powerful message and a great way to get people thinking about HWP!

The second piece I included in my syllabus was the Thompson and Gloss (2014) paper in which they reviewed recent scholarly developments on the intersection of I-O and global development. Poverty reduction is not something I think first-semester I-O graduate students expect to read about, but the reaction is incredibly positive. I’m going to paraphrase one of my students, who said something to the effect of, “I knew I was getting into a field that was exciting, but I didn’t know I was getting into a field that also shared my values!”

The student’s reaction made me think of a recent paper by Jones, Willness, and Madey (2014) in which they talked about organizational attractiveness as being affected by three signal-based mechanics. The authors said that job seekers are attracted to organizations that they anticipate being proud to be part of, that they expect will treat employees well, and that they see as reflecting good value fit. People come to I-O for all kinds of reasons, and one of the things that getting to know about HWP does for students and professionals in the discipline is that it can affirm that value fit (and potentially provide a source of pride in their profession beyond what they already felt). To me, that’s a pretty good reason for all of us to get to know HWP.

### **GOHWP.org**

As Ashley Hoffman and Laura Sywulak indicated in the October 2016 “[Spotlight on HWP](#)” column, two of the main priorities for GOHWP are information sharing and networking. We want you to be able to find out what’s going on in the world of HWP, and we want you to be able to connect with like-minded professionals as well as organizations that could use your help! Because of that, as we’ve continued to expand our web presence, one of our goals has been to provide as many resources as we can. We are in the process of adding more information to our site, so please visit our [resources page](#) over the next few months to find out more. You can also email us if you have any resources you would like us to share on our site. Many thanks for reading!

If you have thoughts or questions related to HWP, we’d love to hear from you; feel free to reach out to us directly ([sahmed22@iit.edu](mailto:sahmed22@iit.edu) or [mullins@xavier.edu](mailto:mullins@xavier.edu)) or through the GOHWP web page.



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### **New Local I-O Group in Los Angeles Leads with its Purpose: The People Experience Project Nazanin Tadjbakhsh, Peter Rutigliano, and Anna Erickson**

"Have you ever wondered what would happen, if all the geniuses—the artists, the scientists, the smartest, most creative people in the world decided to actually change it? Where, where could they even do such a thing?" –Hugo, Tomorrowland Movie (2015)

In recent issues of *TIP*, the SIOP Local I-O Groups Committee has highlighted the successes of several established local I-O groups such as METRO in New York (Shapiro, Erickson, & Farmer, 2016) and MPPAW in Minnesota (Erickson & Rutigliano, 2016). In this article, we will shift our focus to a local group that is just getting started.

On November 14, The People Experience Project hosted its first chapter meeting in Los Angeles, California. This local I-O group is led with one big dream: to build a strong I-O community in Los Angeles where passionate researchers and practitioners can collaborate and share actionable insights to help enhance the ways people experience work. The group's founding members were moved by **Dr. Steve Kozlowski's** opening keynote at SIOP 2016 where he proposed a top-down and bottom-up multilevel approach in order to maximize the impact of I-O psychology. To execute Steve's vision for a bottom-up approach, the founding members wished to establish a local I-O presence of commune, discussion, and networking in the Los Angeles metro area. The group was spearheaded by graduate students Naz Tadjbakhsh, Evan Kleiman, and **Melissa Steach** of Alliant International University-Los Angeles.

As a newly established local grassroots I-O group in Los Angeles, the founding members of The People Experience Project knew they had to provide a compelling reason for people to join. Having liaised with the SIOP Local I-O Group Committee, Naz, Evan, and Melissa had strong examples of other successful local groups to pull from for their own group. After gathering insights and best practices from SIOP's Local I-O Groups Committee members and the [Toolkit for Local I-O Groups](#), the founders knew that they not only wanted this group to promote and advance I-O psychology as a discipline and career but also to facilitate meaningful connections between industry professionals and students in the field looking to grow and make an impact. The Toolkit for Local I-O Groups was particularly helpful in determining the structure of the group and the meeting format. Naz, Evan, and Melissa decided to use a blended approach, kicking off with socializing and networking for the first 30 minutes followed by a speaker to discuss the future of workplace design.

The group has attracted interest from professionals in various stages of their careers, from graduate students to seasoned professionals working in *Fortune* 500 companies. Those who join the The People Experience Project believe in its purpose to use evidence-based practices as a mechanism for developing actionable tools and insights to augment the employee experience through I-O psychology practices. The greatest challenge in getting the group established has been finding a date and location that would be convenient for enough people to attend. Having established a time and location, there were a number of individuals intending to join the inaugural event with over 50 people included on the mailing list. Despite some last minute cancellations, those in attendance were actively engaged, resulting in an incredible evening full of thoughtful discussion and genuine connection. For the first event, it was successful in the eyes of the officers as they had accomplished their goal of initiating a strong community for members to grow together and discover how they can each make a bigger impact in their organizations and communities.

The local group's quarterly meetings are hosted at Herman Miller's showroom in Los Angeles, an atmosphere that is as aesthetically appealing and tranquil as it is functional and collaborative. It is evident in each member's reaction when arriving that the connective space sets the mood of relaxed inspiration and excitement. Members naturally convene in the indoor central plaza, a communal space with comfortable seating and refreshments. The coffee shop-like setting facilitates spontaneous discussion in a safe space where members are able to truly engage and connect with one another. As people share their unique experiences, ideas begin to merge together, and this manifests into an impromptu brainstorming session. The iteration of ideas steadily materializes into actionable insights. This is what The People Experience Project is all about—building a strong community that inspires worthwhile discussion and growth amongst its members who want to make an impact. Those who join are thrilled to come along for the ride and see how far it will go.

The members of the SIOP Local I-O Groups Committee are especially excited about this local group because it serves such an important need within the profession. During the 2016 SIOP conference, we asked attendees stopping at our table to indicate Local I-O Group membership or interest in membership by placing a colored pin on a map. Nearly one quarter (23.3%) of individuals expressing an interest in joining or starting a local group indicated that they were from California, and half of those were from Los Angeles.

If you would like to learn more about The People Experience Project, please contact Naz Tadjbakhsh at [ntadjbakhsh@alliant.edu](mailto:ntadjbakhsh@alliant.edu). Membership is free and the group meets once a quarter. The meeting format blends networking, a guest speaker, and round table discussion. If you are in the Los Angeles looking to push the boundaries in a supportive community where members grow together and make an impact, join us!

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## **Has Industrial-Organizational Psychology Lost Its Way?**

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**Robert B. Kaiser**  
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**Consulting Psychology Journal: Practice and Research**

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**University College London & Columbia University**

**Cicek Svensson**  
**Comms Multilingual Ltd**

Work is important. It's how society gets things done, largely through organizations—commercial enterprises, nonprofits, governmental agencies, and more (Hogan & Chamorro-Premuzic, 2013). It's where people spend much of their lives and establish a big part of their sense of self. Work groups provide social identities, hierarchies provide status, and difficult work problems provide a chance to be creative and innovate. More than any other discipline, industrial and organizational (I-O) psychology is focused on better understanding and improving this important aspect of life.

There is no need to catalogue the historical contributions of I-O psychology—a high-level reminder of a few things like enhancing organizational and individual effectiveness, improving working conditions and enriching jobs, and promoting justice in the workplace more than makes the point. I-O psychology is probably more relevant than ever to work lives, organizations, and society at large. But there is a problem: We see the field losing its way, in danger of becoming less relevant and giving up ground to other professions with less expertise about people at work—but perhaps better marketing savvy and business acumen. Without a fundamental reorientation, the field is in danger of getting stuck in a minority status in organizations: technocrats who apply their trade when called upon but not really shaping the agenda or a part of the big decisions.

This article summarizes our concerns with the current state of play in I-O psychology, both academic and applied. Our point is to make a case for how a return to a seemingly forgotten ideal, the scientist–practitioner model, can help the profession get back on the path to relevance, respect, and impact in the world of work.<sup>1</sup>

### **Troubling Trends**

I-O psychology has been moving in recent years in a direction that we believe may hurt the discipline. Some of the more troubling trends include:

- an overemphasis on theory
- a proliferation of, and fixation on, trivial methodological minutiae
- a suppression of exploration and a repression of innovation
- an unhealthy obsession with publication while ignoring practical issues
- a tendency to be distracted by fads
- a growing habit of losing real-world influence to other fields.

## Overemphasis on Theory

I-O psychologists are increasingly focused on testing grand (and occasionally grandiose) theories that have little utility for advancing the discipline. These efforts are often carried out in the name of science, but they are primarily academic. Science is about knowledge. The word *science* comes from the Latin word *scientia*, which means knowledge. Science-generated knowledge arises from repeated measurements, studies, and experiments about a given phenomenon. In this view, scientists...

are technicians collecting and collating information, often in quantitative forms. Paul Meehl (1967, 1978) dispelled once and for all the misconception that we, in what he called the “soft social sciences,” are testing theories in any way even remotely resembling how theory focuses and advances research in the hard sciences. Instead, the mistaken notion that we are theory-driven has, in Meehl's opinion, led us into a worthless pro forma ritual of testing and rejecting statistical hypotheses that are a priori known to be 99% false before they are tested. (Glass, 2000)

There is a need to dial back the overzealous enthusiasm for theory that dominates I-O scholarship. Of course, theory is essential for explanation, and as Kurt Lewin (1943) opined in his famous maxim, “there is nothing so practical as a good theory.” But theory for theory's sake is a fallacy that some are beginning to call out for the excess that it is (cf. Campbell & Wilmot, in press; Hambrick, 2007).

## Methodological Straitjackets

A fixation on methodological minutiae is causing the I-O to become more and more precise in ways that matter less and less. The upside to this trend is that the field has achieved an enviable level of methodological rigor. For instance, if one compares the typical methodological features of top I-O publications, such as the *Journal of Applied Psychology* or *Personnel Psychology*, from 50 years ago to today, the higher standards are obvious: larger and more representative samples, multiple studies, meta-analytic reviews, and more refined statistical analyses are now the norm (Shen et al., 2011). The majority of articles published 50 years ago would likely be rejected by reviewers today.

The downside, however, is that this obsession with methodological rigor has widened the gap between science and practice. Many empirical papers are impressive demonstrations of statistical wizardry but are detached from real-world problems and concerns. The past decade's reviews on common I-O practices (e.g., the reliability of the employment interview, the effectiveness of executive coaching, or the validity of integrity measures) are based on high-quality publications that bear little resemblance to how their topics are used in real-world applications. One wonders if those papers would have survived the peer-review process had they had a greater focus on practice.

By the same token, the methods prescribed by I-O scholars are increasingly but unnecessarily complex. To be frank, simple statistical approaches suffice for most practical questions (Murphy, 1997). The methodological strength of I-O practitioners comes from the volume and real-world fidelity of their data. A principle of Big Data analytics applies here: More field data beat more complex statistics. But the peer-review process is hopelessly tipped in favor of complex analytics. As anyone who has experienced the review process for the annual SIOP conference will have noticed, methodologically precise, statistically complex proposals on trivial subjects are usually preferred over proposals focusing on innovative but perhaps methodologically imperfect practical applications. As a result, SIOP is increasingly plagued with sessions that celebrate I-O's statistical sophistication and technical precision while neglecting its practical

utility to solve real problems in real organizations. Not surprisingly, the vast majority of HR and talent-management practitioners have never heard of SIOP or I-O psychology, so they seek solutions elsewhere.

### **Suppressed Exploration and Repressed Innovation**

There is an absence of innovation and new ideas in the field. The topics and discussions that concern SIOP today are, by and large, the same ones that concerned it 30, 50, and in some cases even 70 years ago. For example, in employee selection, the field is still debating the validity of personality and cognitive ability, refining our understanding of assessment centers, and examining situational judgment tests. “Modern” measures of the former have been used in employee selection for over 90 years. Assessment centers were invented in the 1930s. Even the currently de rigueur situational-judgment tests have existed for over 50 years. Where are the new ideas?

There seems to be an increasingly dysfunctional view in I-O psychology that exploration and, by extension, innovation are undesirable. Inductive research is regarded as inherently unsound—just try to publish an exploratory study in a top-tier I-O journal. In fact, our experience is that *discovery* has become a dirty word in our field’s scientific writing. (More than once we have encountered reviewer comments to the effect that “such a finding cannot exist in your huge database because it is not predicted by theory” or a favorite perennial dismissal, “Not sufficiently grounded in theory”). This is reminiscent of the widespread disbelief in Galileo’s demonstration of the telescope, with some of his colleagues remarking, upon experiencing the power of direct observation, that this would indeed be very convincing evidence *if only* it did not contradict Aristotle’s theory or the doctrine of the Catholic Church. Refusal of some of Galileo’s contemporaries to even look through the telescope perfectly parallels some modern gatekeepers to I-O psychology platforms who block the dissemination of inductive research.

*Empirical* means based on observation and induction; it involves generalizing from observations, and it is often exploratory in an effort to make sense of what you see. Inductive research does not have theories to test; rather, it identifies which questions to examine and sometimes even helps to better define how to frame them. Discovery is the goal and it highlights the functional aspect of serendipity (Locke, 2007; Spector, Rogelberg, Ryan, Schmitt, & Zedeck, 2014). It seems rather arrogant to emphasize theory testing over exploration, as if we already know what the important questions are and how they should be formulated. Curiosity and exploration fuel innovation, which is essential for driving progress in both academic and real-world applications of I-O psychology.

### **Prosaic Publications Divorced From Practice**

Pedestrian, often derivative, work dominates I-O research. Scholarship is increasingly unconcerned with application and applicability (Silzer & Parsons, 2012). As we described, many scholars seem focused on building theories and complex statistical models. Their goal appears to be advancing academic discourse rather than providing solutions or guidance to practitioners. Not surprisingly, practitioners often ignore much of what is in mainstream I-O journals (Blanton, 2000) because these publications exhibit, to paraphrase Lewin (1943) again, a disdain and high-brow aversion to practical problems. It is as if applied work is somehow beneath the rigors of proper scholarship.

This may be a defensive reaction on the part of many academics not really understanding the tradeoffs needed to do applied work. It may also reflect a real desire to stay in the ivory tower of I-O academia precisely because real-world research is difficult. Yes, it’s messy. Yes, the databases are often noisy and

incomplete. Yes, there is a lack of experimental control. But field data are contextually rich and often voluminous (in participants, observations, measurements, etc.). Much of these valuable data do not make it into journals and remain in hiding in technical reports or data archives of organizations and consultancies. Bringing such data to bear on I-O science should be a goal of both research and practice. We need to shift greater focus to field-based, application-relevant research.

Scientists will need to look beyond mere theory building, concentrating their work on messy, real-world data to address questions of importance to practice. Practitioners will need to share their data and partner with scientists. We also concur with Campbell's (1990) pronouncement from many years ago that appears to have gone unheeded: "Given the difficulty of its chosen assignment, psychology has compounded its problem by devaluating teaching and public service in favor of doing research. As a result, more people are conducting research than should be, spreading the available resources too thinly and filling the journals with too much that is unimportant" (p. 46).

### **Practitioners Distracted by Fads and Fashions**

Although I-O research has the potential to provide evidence-based solutions to many real-world talent-management problems—that is, how to hire, develop, engage, and retain employees and leaders—practitioners are much more likely to look to the latest fad or shiny new object than to seminal I-O publications. Some topics—for example, emotional intelligence, transformational leadership, and the dark side of personality—simultaneously capture the interests of I-O scholars and self-proclaimed "gurus." However, a great many HR trends—for instance, learning agility, strengths-based coaching, the MBTI, digital leadership, HR analytics, and managing millennials—are virtually alien to I-O scholars.

This is problematic for two reasons. First, practitioners—or at least those who are trying to be evidence-based—would benefit from an informed and expert opinion on these topics from the I-O community (in particular, independent scholars). It is not that I-O has nothing to say on these matters but, rather, that it is too focused on its own academic concerns, and when it does turn attention to practical concerns, it often seems to be speaking a different language. Second, I-O's absence from the party delays or obstructs progress for real-world innovations.

For example, at the latest HR Tech Conference, which attracts around 10,000 delegates each year, during his closing keynote address Peter Cappelli (2016) asked the audience whether they had ever heard of I-O psychology. Fewer than 10% had. Yet the overwhelming majority of sessions covered and products offered during this convention concerned traditional areas of application for I-O: employment interviews, performance appraisals, 360s, and selection tools. Although the focus of these sessions and products was largely on emerging technologies, rather than I-O research, one would think that the science of I-O would be integral to enhancing such technologies. This trend is consistent with the broader gap between I-O scholars (who appear to be disinterested in new technologies) and technology enthusiasts (who have little interests in I-O research).

### **Losing Ground to Other Fields**

Other fields are taking over I-O research and practice, and they seem to garner more attention and respect: for instance, behavioral economics, neuroscience, education, professional credentialing, and even marketing. They have shinier, not necessarily better, toys, and they sell themselves better. Consider the following examples of how I-O psychologists are getting beaten at their own game.

Much of what is happening with Big Data amounts to little more than identifying covariations and patterns in massive convenience samples of data. Many I-O psychologists have a deep understanding of these statistical methods as well as ways of organizing, cleaning, and structuring databases. Yet economists, data scientists, and even marketers seem to be leading the way in Big Data. How did we get scooped at one of the things we do best (and better than most)?

Professions outside of psychology are getting into the business of predicting and understanding people. Assessment has become a ubiquitous feature in marketing, credit and risk, and online dating, yet few of these industries show much interest in understanding lessons from I-O psychology. Perhaps more strikingly, traditional fields of I-O application, such as training, recruitment, and performance evaluations, are rapidly incorporating methods and tools from computer science, such as gamification, machine-learning, and artificial intelligence while ignoring the vast body of knowledge from I-O on these very matters.

The big accounting and financial-management firms are getting into talent management, especially leadership assessment and development. It's a nice lateral extension to sell more to customers with whom they've had long and deep relationships, all under the core competency of risk management. But the degree of sophistication in understanding people and learning and development is not nearly as impressive as, say, these firms' understanding of financial-asset management.

Some of the more interesting research on leadership in the last few years has been conducted by economists. Economists have identified common management practices that explain firm profitability, industry profitability, and even the financial success of different nations (Bloom & Van Reenen, 2007). Economists have established links between CEOs, corporate strategy, corporate policy, and financial performance using distinctively psychological explanations like personality, arrogance, and hubris (Bertrand & Schoar, 2003; Malmendier, Tate, & Yan, 2011). Making matters worse, training in I-O psychology does not incorporate knowledge and skills from these fields, which is too bad because this knowledge can expand our students' understandings and make them better able to compete in the labor market.

These are indeed troubling trends in I-O psychology. The insular, academic thinking that dominates the discipline creates hostility and antipathy toward practice and the applied world that keeps it on the periphery—when it could be center stage in a leadership role.

### **Getting Back on Track: The Scientist–Practitioner Model**

We must remember that we are a field of both scientists and practitioners, united by a desire to make psychology an *applied* tool for improving the world of work (Silzer & Cober, 2010). At the same time, we must find a way to better integrate these two aspects of the field. In order to achieve this, we recommend a renewed emphasis on the scientist–practitioner model, which at the core simply holds that I-O psychologists should be formally and systematically educated for a comprehensive understanding of the discipline and how knowledge is added to it (scientist) as well as trained to apply this knowledge effectively to real-world situations (practitioner)—akin to clinical psychology's "Boulder model" (Shakow et al., 1947).

Why will this model help the field find its way? In a large sense, it will help because the practice aspect will focus the field on the problems that concern the people we want to help, whereas the scientific part will ensure that we develop our ideas and applications with a dedication to evidence. Practice without

evidence can quickly devolve into fads; science without practice runs the risk of navel gazing. Applying both sides of the model emphasizes the purpose of I-O psychology: to gain a better understanding of people at work and to help them deal with the challenges they face.

On a more existential level, this dual focus can go a long way to stemming the troubling trends we described above. To do this, the practice side of our house needs to be fortified—with better, broader, and more diverse training, both in graduate-school classes and through continuing education. A model of lifelong learning and development should encourage and enable practitioners to publish, present, or collaborate with scientists on field-based research throughout their careers. There may be more wisdom about what really works in solving organizational problems in the heads of reflective practitioners and seasoned consultants than in a research library of I-O journals (Kaiser, 2015). But getting that know-how systematically organized and codified remains a challenge.

The science side of the I-O house must come to better appreciate real-world issues and to learn to communicate better with and influence practitioners. As scientists, we should focus more on discovery and knowledge creation. An important point to stress in all of this is that knowledge is not the same thing as information. Information from organizations and field settings must be transformed into knowledge, testing generalizability of effects and boundary conditions. Theory-driven meta-analyses are ideally suited to this enterprise (Ones, Viswesvaran, & Schmidt, 2017).

In order to integrate science and practice, I-O psychology also needs to change its society membership, publishing, and graduate training approaches to one of greater inclusivity. Dusty old structures and practices must be replaced with forward-looking, contemporary approaches. For instance, the SIOP organization is highly political and hierarchical, guarded heavily by academics, which makes it difficult for practitioners to penetrate. SIOP has a great deal to learn from adjacent professional societies like the Association of Test Publishers (ATP), the Association for Talent Development (ATD), the Human Resource Planning Society (HRPS), and the Society for Human Resource Management (SHRM). In addition to marketing and brand management lessons, SIOP could learn to extend its reach. The approachability and inclusivity of these organizations has gone a long way to expanding their membership and leadership. The expansion has extended their influence, especially with real-world organizations, and has not detracted from their prestige. In fact, it has enhanced their prestige among practitioners.

Relatedly, SIOP Fellowship status places more emphasis on academic pedigree than professional contribution: one can meet the requirements of a body of innovative research with a high publication impact factor, have founded a global business advancing research-based solutions, or regularly advise top management at large companies—and even all three—but if you don't also have a PhD, then you cannot be a SIOP Fellow. Recent changes in membership requirements are a promising move: becoming a full Member, which was necessary to vote in SIOP elections and hold positions on the Executive Board and chair committees, has historically required a PhD, whereas a master's degree only qualified one for non-voting, "Associate" membership. The recent change provides Associate members, which include a great many practitioners, with a path to Member status by meeting certain reasonable requirements (e.g., active involvement in the profession, attendance at annual meetings, nomination by a Member). More reform along these lines could do more to promote practitioner influence on the profession.

We also need to attract and train strong, quantitatively-oriented graduate students for our field. Capable applicants from all sorts of undergraduate majors can be better encouraged to enter I-O-based graduate programs. Applicants' choices are not easy when there are monetary consequences to



choosing I-O psychology (e.g., obtaining an MBA or a graduate degree from a business school may pay better than a graduate degree in I-O psychology). Our appeal must include very strong nonmonetary incentives. Finally, I-O-psychology graduate programs should train methodologically sophisticated I-O psychologists who are ready to function in *both* applied and academic settings. They should be positioned to successfully compete and exceed competence offered by other fields encroaching on I-O (e.g., behavioral economics, data science, and people analytics).

### Conclusion

Our field faces a perverse irony: the psychology of work is more relevant than ever and organizations are becoming much more data-driven and evidence-based, but I-O psychologists are at risk of being marginalized. It is not that the field isn't acknowledged but rather that its acknowledgement—and, more importantly, its influence—is smaller than it ought to be. As Rahm Emanuel indelicately put it, “If you don't have a seat at the table, you may be on the menu.”

The fault lines between science and practice are deep and getting deeper. I-O psychology is following the course of our increasingly polarized society and specialized workforce. We can claim that seat at the table through a renewed, whole-hearted embrace of the scientist–practitioner model. Transformative change is possible, and it typically starts with individuals. Perhaps our best hope is with the new generation of I-O psychologists.

To the old guard, we say: Be inclusive, train and mentor scientist–practitioners. Do not stand in the way of the scientist–practitioner model. To the rising new generation, we say: Learn from both science and practice, and chart your own path of practical science, discovery, and innovation. You can keep I-O psychology alive and relevant. Its future depends on you.

### Note

<sup>1</sup> As the authors of this article, we should note that we are scientist–practitioners, carrying out multiple activities in both the scholarly (scientist, author, journal editor, etc.) and practitioner (consultant, advisor, CEO, entrepreneur, speaker, organizational educator, etc.) domains. Working in both worlds gives us a perspective that is increasingly rare in I-O psychology.

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### **Closing the Scientist–Practitioner Gap: Studies from 2016 With Significant Practical Utility**

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**Human Capital Growth**

### **Introduction**

Industrial-organizational psychologists have long touted the scientist–practitioner model. Descriptions of the field (including the description on SIOP's own website) emphasize the application of research to improve performance across individual employees, teams, and organizations. Therefore, academic research should be of exceptional value to organizations to guide the design of effective workplace interventions. There is a disconnect, however, between scientific knowledge and workplace application. Researchers often conduct studies without considering their utility in the workplace, and organizational leaders and practitioners frequently base decisions on intuition or guesses without first consulting

science. When applied effectively in organizational settings, scientifically rigorous I-O research enhances employees' lives and boosts organizational performance (Huselid, 1995; Sverke, Hellgren, & Naswall, 2002). Top quality studies fill academic journals every year but often go unnoticed by practitioners (Rynes, Colbert, & Brown, 2002; Sanders, van Riemsdijk, & Groen, 2008). This may be due to the mismatch between what researcher's study and the topics that are of importance to practitioners. In fact, a recent study by SIOP's SCi taskforce found that of the 687 accepted submissions for the 2016 annual SIOP conference, only 35% were related to the top workplace trends (Thornton, Poepelman, Sinar, Armstrong, & Blacksmith, 2017). Our study was partly motivated to understand to what extent published studies match trending issues in the workplace. This article seeks to highlight a shortlist of I-O psychology research articles from 2016 that demonstrate tremendous potential for application in organizations. Additionally, we examine if these articles further understanding of the topics presented by the 2016 workplace trends. By showcasing these important studies, we hope to contribute to closing the scientist–practitioner gap and guide future research endeavors to advance the field while improving employees' lives and organizational performance.

### Method

Our review of the I-O psychology literature began with a focus on academic journal articles published in 2016 in the top 15 most prestigious I-O journals as ranked by SIOP (Zickar & Highhouse, 2001; see Appendix). This focus yielded 955 articles to review across the 15 journals. Articles were reviewed for topics related to practices in the four key areas: hiring, managing, developing, and supporting employees. The team reviewing and ranking the literature consisted of four scientist–practitioners: two graduate students in I-O psychology, a scientist–practitioner with a PhD in I-O psychology, and an HR practitioner with significant field and scientific research experience. The literature review process consisted of two main phases. First, the 955 articles were reduced to a shortlisted set of 47 articles following the creation of article selection criteria. To be selected for the shortlist, an article needed to meet all the following four criteria:

1. Tackles a pressing problem in organizations, including but not limited to SIOP's list of Top 10 Workplace Trends 2016 (SIOP Administrative Office, 2015)
2. Describes a meta-analysis or an empirical study comprising multiple methods or multiple studies
3. Results of the study can be applied across multiple types of workplace settings (as opposed to only advancing theoretical understanding)
4. Effect sizes of the study/studies are significant and practically meaningful

Next, a Research Applicability and Practical Utility scale was created by the team to further narrow the 47 shortlisted articles to the final 10. The scale consisted of four dimensions that rated each study's importance, potential for action, generalizability, and statistical significance. Each of the dimensions was rated using a four-point scale.

**Importance.** Measured the extent to which the empirical study examines current workplace trends (1 = *study will lead to incremental improvement in the field*; 2 = *the study could further understanding on existing practices*; 3 = *study brings clarity to debated or less understood topics*; 4 = *the study addressed trending/emerging problems [as described by SIOP's 2016 Workplace Trends Survey]*).

**Potential for action.** Measures the extent that the results of a study can be used in applied settings to design workplace interventions, rather than simply advancing theoretical understanding of a topic (1 = *study has future potential but is not applicable*; 2 = *study only explains a phenomenon*; 3 = *results of the*

*study can be used primarily for making workplace predictions including employee selection; 4 = study is predictive and can be used for interventions that lead to improvements at the individual, team, and organizational levels).*

**Applicability.** Measures whether the study's findings have utility across all work settings (1 = *study is useful but not generalizable*; 2 = *study's results are generalizable to organizations in single industries [i.e., nursing, technology, etc.]*; 3 = *results are generalizable across multiple industries*; 4 = *studies are highly generalizable across all work settings*).

**Statistical significance.** Measures the magnitude of the study's effect size. Cohen (1992) guided the classification of effect sizes into four categories. (1 = *extremely small effect size* [ $R^2 < .02$ ]; 2 = *small effect size* [ $.02 < R^2 < .05$ ]; 3 = *moderate effect size* [ $.05 < R^2 < .25$ ]; 4 = *significant effects* [ $R^2 > .25$ ]).

Once ratings were provided by each rater, interrater reliability was calculated using the intraclass correlation (ICC) statistic to determine consistency among the four raters on each rating dimension (Shrout & Fleiss, 1979). The interrater reliability is considered poor for ICC values less than .40, fair for values between .40 and .59, good for values between .60 and .74, and excellent for values between .75 and 1.0 (Cicchetti, 1994). All ICC (two-way random) values were in the acceptable range. For the dimension of importance, the ICC = 0.65 ( $p < .0001$ ), 95% CI (0.440, 0.790). On the potential for action, ICC = 0.81 ( $p < 0.0001$ ), 95% CI (0.697, 0.886); for applicability, ICC = 0.81 ( $p < 0.0001$ ), 95% CI (0.705, 0.888) and ratings of statistical significance, ICC = 0.90 ( $p < 0.0001$ ), 95% CI (0.832, 0.939).

## Results

While there were many significant and impactful studies published this past year, the shortlist below shows the 10 most applicable articles of 2016 based on the Research Applicability and Practical Utility scale described above. Each of the articles is summarized below along with a brief note on the practical implications. We also note how the study relates to a 2016 SIOP trend.

### **The Struggle With Employee Engagement: Measures and Construct Clarification Using Five Samples (Byrne, Peters, & Weston, 2016)**

**SIOP trend(s).** Employee engagement

**Summary/key findings.** The authors examined the ability of the Utrecht Work Engagement Scale (UWES) and the Job Engagement Scale to assess the measurement and conceptualization of employee engagement as an independent construct. Results show that the two scales are correlated but not interchangeable and that the UWES assesses engagement with overlap from job attitudes. This study also found that the engagement construct is not the opposite of burnout as previously thought, and engagement is often confounded with the construct of employee commitment.

**Practical implications.** Promoting employee engagement is an important priority for most organizations. However, current understanding is limited due to lack of construct clarity and measurement challenges. This study offers three guidance points to practitioners: (a) burnout, which is an indicator of disengagement, is not the opposite of engagement, and this must be measured using a separate scale; (b) although the constructs of engagement and job attitudes (i.e., satisfaction, commitment, involvement) overlap, they are not the same; and (c) engagement and job performance share a small correlation. Engagement may be more important than performance in promoting well-being.

**Social Media for Selection? Validity and Adverse Impact Potential of a Facebook-Based Assessment (Van Iddekinge, Lanivich, Roth, & Junco, 2016)**

**SIOP trend(s).** Using social media to make employment-related decisions

**Summary/key findings.** This study explored organizations' use of Facebook to screen job applicants. The authors examined recruiter ratings of Facebook profiles with respect to criterion-related validity and subgroup differences. Recruiter ratings of applicants' Facebook profile information were unrelated to supervisor ratings of job performance, turnover intentions, and actual turnover. Finally, there was evidence of subgroup differences in Facebook ratings such that White female applicants were preferred over other subgroups.

**Practical implications.** Social media pages of job candidates are readily available and inexpensive, but their value in informing hiring has been largely unknown. This study demonstrates that social media information offers no value beyond the tools typically used to predict job performance. Although recruiters may be good in sourcing candidates, their judgment about candidate quality based on Facebook profiles tends to be inaccurate. Recruiter ratings may instead do harm and result in subgroup differences that result in adverse impact.

**Tethered to Work: A Family Systems Approach Linking Mobile Device Use to Turnover Intentions (Ferguson et al., 2016)**

**SIOP trend(s).** Trends in technology are changing the way work is done; increasing focus on health and wellness in the workplace

**Summary/key findings.** This study explored the effects of mobile work (mWork) during family time on both employees and their spouses. The results indicate that mWork is associated with greater work–family conflict, burnout, and declines in employee commitment. The employee's spouse was also impacted by mWork, and the spouse showed less organizational commitment to the employee's organization when the employee worked during family time. Employee turnover intentions increase in response to the diminished organizational commitment of employees and their spouses.

**Practical implications.** In some countries (e.g., France), labor agreements mandate that employees disconnect from mWork after certain hours. This study demonstrates that asking employees to refrain from doing work on their mobile devices during nonwork time may have positive effects on well-being and commitment. Although this study focused on mobile work, it lends support to the broader idea that supportive organizational practices lowers intentions to leave and increases organizational commitment.

**The Influence of Family-Supportive Supervisor Training on Employee Job Performance and Attitudes: an Organizational Work–Family Intervention (Odle-Dusseau, Hammer, Crain, & Bodner, 2016)**

**SIOP trend(s).** Increasing focus on health and wellness in the workplace; employee engagement

**Summary/key findings.** This study examined the benefits of family-supportive supervisor behaviors (FSSB) on employee physical health, job satisfaction, and turnover intentions in a healthcare setting. Results demonstrate significant beneficial effects of FSSB training. However, the relationship between

training and the outcomes were observed only when employees perceived their managers engaging in family-supportive behaviors. The use of creative work–family management was shown to be the most beneficial among the FSSB strategies that were taught.

**Practical implications.** The postrecession economy has required doing more with less, resulting in an overwhelmed workforce. There is growing awareness of the need to promote employee well-being, particularly through work and family integration programs. Besides channeling such programs through HR, training managers on the mechanisms of family-supportive behaviors can have significant benefits. Such an intervention requires establishing a clear case of family supportive programs, developing a menu of options, and educating managers on their delivery.

### **Help or Hindrance? Work–Life Practices and Women in Management (Kalysh, Kulik, & Perera, 2016)**

**SIOP trend(s).** Work–life balance across generations; building healthy, diverse workforces

**Summary/key findings.** The study examined the relationship between work-life practices in 2002–2006 and the proportion of women in management in 2010, 2012, and 2014.

Work-life practices had a positive effect on women in management after an 8-year time lag, though the effect was not found in organizations that were highly male dominated. Leave arrangements and direct provision of services such as childcare or elder care had the strongest association with women in management.

**Practical implications.** There is widespread recognition that increasing the representation of women in the workforce is good for women, society, and the economy. Work–life balance programs are proposed as one solution to achieving this goal. Many organizations invest in and then cut such programs before seeing results. This study provides guidance on the investment period before which organizations can expect to see results. In the case of work–life programs improving gender diversity, the investment period is approximately 8 years. Access to services such as childcare can be particularly influential in attracting and retaining female employees.

### **Overconfidence in Personnel Selection: When and Why Unstructured Interview Information Can Hurt Hiring Decisions (Kausel, Culbertson, & Madrid, 2016)**

**SIOP trend(s).** Although missing from the list of 2016 trends, considerable research and organizational resources are spent on selection processes. Knowing whether such expenditures have significant ROI in attracting top talent remains a perennial problem despite this topic’s absence from the list of 2016 trends.

**Summary/key findings.** This study examined overconfidence in predictions of job performance for participants who were responsible for hiring decisions. Participants who received results from an unstructured interview showed more overconfidence in their selection than those who were only presented with applicant test scores. Counter to current organizational practices, managers who used objective test scores of intelligence and conscientiousness were more accurate in their prediction of job performance than those who used test scores and applicant performance in unstructured interviews.

**Practical implications.** Unstructured interviews are the most common selection tool used in organizations. Even though managers have access to more valid tools, hiring candidates without an interview is deemed sacrilegious. This study has important implications for selection practices, and organizations can save on managers' time and resources by utilizing scores from validated predictive tests.

#### **Multisource Feedback, Human Capital, and the Financial Performance of Organizations (Kim, Atwater, Patel, & Smither, 2016)**

**SIOP trend(s).** Changing nature of performance management and development

**Summary/key findings.** This study investigated the relationship between multisource feedback (MSF) programs and the organization's financial performance. This study found that multisource feedback used for administrative and developmental purposes has a moderate effect on a firm's financial performance by elevating employee ability and promoting knowledge sharing. The implementation of MSF programs was also associated with increased workforce productivity four years later.

**Practical implications.** Although there is increasing adoption of MSF programs in organizations, the debate continues whether it should be used for development only or administration only, or whether it can serve both purposes. Many would agree on the developmental benefit of such tools on individual employees; however, the organizational benefits are unknown. This study warrants the use of MSF for dual purposes. The real value of MSF is unleashed when it generates exploration of the ratings by the feedback recipients to reduce discrepancy between current and ideal behavior. The collective outcome is an improvement in overall firm level performance. Organizations should ensure employees are actively seeking clarification, coaching, and mentoring utilizing the information gathered through the MSF process.

#### **How Does Leader Humility Influence Team Performance? Exploring the Mechanisms of Contagion and Collective Promotion Focus (Owens & Hekman, 2016)**

**SIOP Trend(s).** Changing nature of performance management and development

**Summary/Key findings.** This study examined the effects of leader humility on team interaction patterns, emergent states, and team performance. The study found that leader humility induced followers' humility and produced an emergent state that enhanced team performance.

**Practical implications.** Many believe leaders should be confident and self-righteous to avoid the appearance of weakness or incompetence. The findings of this study suggest the opposite and find that humble leaders help their team members overcome their competitiveness and shift their attention to achieving the highest potential for the team. The ability to create such a selective focus on the team's potential enables goal achievement. The study has several implications for leader selection and training. Organizations can benefit from using humility as a selection criterion and train leaders on transformational leadership.

#### **A Meta-Analytical Integration of Over 40 Years of Research on Diversity Training Evaluation (Bezrukova, Spell, Perry, Jehn, & Melbourne, 2016)**

### **SIOP trend(s).** Building healthy, diverse workforces

**Summary/key findings.** This meta-analysis investigated the effects of diversity training on four training outcomes: reactions, cognitive learning, behavioral, and attitudinal/affective learning. Reactions to training and cognitive learning had the largest effects, whereas behavioral and attitudinal learning have smaller effects. Effects on reactions and attitudinal learning decayed over time, but cognitive learning remained stable or increased.

**Practical implications.** There have been conflicting findings on the role of diversity training in reducing prejudice and stereotypes. The results of this study indicate that diversity training is more impactful when embedded as part of a larger diversity initiative rather than as a stand-alone activity. While training may successfully lead to knowledge gain about diversity, we still do not have effective ways to change attitudes and behavior. Furthermore, it is still unclear whether diversity training should be mandated or if participation should be voluntary. According to this meta-analysis, behavior change was greatest for those for whom diversity training was mandatory. Unfortunately, the meta-analysis did not investigate the effects of unconscious and implicit bias, or the efficacy of practices that are currently popular in addressing bias.

### **Building Work Engagement: A Systematic Review and Meta-Analysis Investigating the Effectiveness of Work Engagement Interventions (Knight, Patterson, & Dawson, 2016)**

#### **SIOP trend(s).** Employee engagement

**Summary/key findings.** This study aimed to determine which interventions most effectively promote employee engagement. Engagement interventions conducted in groups were most efficacious in improving engagement levels. However, it should be noted that there were fewer studies investigating individual-level interventions. This may have limited the ability to fully test the efficacy of such interventions. This meta-analysis assessed the effectiveness of four types of work-engagement interventions: (a) personal resource building; (b) job resource building; (c) leadership training; and (d) health promotion. Each of the interventions had a small but significant effect on work engagement.

**Practical implications.** Organizations can achieve measurable improvements in engagement levels by utilizing an intervention strategy that is segmented and matched by subgroups. Such improvement efforts are likely to be more sustained when they are geared toward improving facets of work engagement (i.e., absorption and dedication vs. vigor) rather than on improving overall engagement.

### **Conclusion and Recommendations**

The studies we have highlighted provide rigorous evidence in several areas that are important to practitioners. Here are three key implications for organizations: (a) To see improvements in gender diversity, organizations must be willing to invest in work-life programs for up to 8 years before seeing results; (b) organizations can more accurately select high performing job candidates, but they must be willing to rely on objective tests measures more than unstructured interviews and social media (Facebook) profiles; and (c) to measure disengagement accurately, organization are better off using separate scales designed to measure engagement and disengagement. Utilizing these results, practitioners can provide evidence-based guidance on what works and avoid investments in low-return practices. The most encouraging part of our study was the overlap between the 2016 SIOP trends and the published studies. Seven of the 10 trends were represented in the examples we have highlighted.



Areas markedly missing were studies utilizing big data, as well as an exploration of behaviors and mechanisms to promote business agility. We see opportunities for researchers and practitioners to collaborate in studying workplace issues utilizing big data. With the rapid adoption of digital technologies, data collection is no longer the challenge. The success of such efforts is likely to rest on effective utilization of big data to ask meaningful questions and in ensuring that studies are replicable and applicable.

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## Appendix

List of journals reviewed for the study

1. *Journal of Applied Psychology*
2. *Personnel Psychology*
3. *Academy of Management Journal*
4. *Organizational Behavior and Human Decision Processes*
5. *Journal of Vocational Behavior*
6. *Administrative Science Quarterly*
7. *Journal of Management*
8. *Journal of Organizational Behavior*
9. *Organizational Research Methods*
10. *Academy of Management Review*
11. *Leadership Quarterly*
12. *Human Resource Management Journal*
13. *Journal of Personality and Social Psychology*
14. *Psychological Bulletin*
15. *Journal of Occupational Health Psychology*

## **“Marx Was Right”: Lessons From Lewin**

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Just before his untimely death in 1947, Kurt Lewin paid a hasty visit to his friend and collaborator Dorin Cartwright, overcome by what Cartwright (1979) would call a “brilliant insight” (p. 179). Upon arriving at Cartwright’s home “in a state of a great excitement,” Lewin proclaimed, “Marx was right”:

When I asked Lewin if he could be more specific about what he had in mind, he said that it was now obvious to him that behavior could not be adequately understood simply in terms of cognitive structure, wishes, and expectations, and that some way would have to be found for dealing with the constraints, opportunities, resources and pressures that originate in the social, political, and technological environment...I have no doubt that if he had been able to develop this new line of thinking, social psychological theory would be considerably different today. (p. 179)

What to make of this fascinating piece of history? Was Lewin right about Marx? Was Cartwright right about “social psychological theory [being] considerably different today,” had Lewin lived to see his “brilliant insight” through?

On the surface, Lewin’s affirmation of Marx may seem superficial—a mere passing nod to someone who shared in Lewin’s penchant for big ideas. Viewed in the larger context of Lewin’s “life space,” however, the statement carries deep significance. Living in Germany during the Wiener Republic years, at the height of intellectual activity that coalesced in the Critical Theory of the Frankfurt School, the young Lewin was certainly no stranger to Marxist thought. Lewin befriended and collaborated with the leading Marxist scholar, Karl Korsch (Lewin & Korsch, 1939) and sought inspiration in Marx’s notion of totality:

To my mind Marx’s emphasis on the totality of factors influencing social life which forbids, for instance, the abstraction from the economical side of any social event, is one of the most important steps in the direction to a field-theoretical approach. (Lewin, 1937, p. 259)

Lewin’s relationship with Korsch dwindled, however, when Lewin migrated to the US. His development of a field-theoretical approach, while arguably Marxian in its revolutionary ethos (Fenison, 1986), did not follow in the footsteps of Marxist scholarship in Europe and America. Why might this be? Did Lewin succumb to the pressures of McCarthyism in his new home? We can only speculate. And why the (re)turn to Marx in the 11<sup>th</sup> hour? We can only wonder. What we can hardly deny, however, is our widespread ignorance—or denial—of Lewin’s Marxist roots and our continued reluctance to learn, as Lewin clearly did, from this important thinker.

So what can Marx teach us contemporary I-O psychologists? Here is a short list:

1. *Totality*: Like Lewin (1943), Marx does not separate people from their social and economic conditions, nor from their past and future, but instead views them as historical entities. The world, too, is not static but a complex of processes. Psychologists therefore must study the “totality” of interrelations and interdependencies in any given phenomenon. All too often in I-O psychology, we neglect the intricate web of “social, political, and technological” forces that constitute a given phenomenon of interest (Cartwright, 1979) and instead dilute our concepts from a complex (and often highly contentious) social phenomenon to an isolated state of mind. Marx encourages us to resist this tendency, just as Lewin famously—and playfully—coaxed the behaviorist Clark Hull to

expand his thinking by labeling the events outside one's personal space as the "foreign hull." The lesson here is that what precisely seems foreign to present-day I-O psychologists is an opportunity for theoretical growth.

2. *Automation*: Although certainly not the first critic of automation, Marx is arguably the most nuanced and prescient. Contrary to the perennial fear of human obsolescence that accompanies this process, Marx (1867) documents how automation actually brings about more work: "[T]he most powerful instrument for reducing labor-time suffers a dialectical inversion and becomes the most unfailing means for turning the whole lifetime of the worker and his family into labor-time at capital's disposal for its own valorization" (p. 523). What Marx highlights here is how the worker under capitalism, although free from feudal servitude, must dispose of the only thing he still owns: his power to work. As this power diminishes with automation, the worker is forced to work for less and less and eventually for nothing at all. Today, we see the effects of automation most starkly in the decimation of factory jobs in the wake of the Great Recession, but we can also witness its "dialectical inversion" whereby redundant labor gets redeployed in increasingly precarious ways—unpaid internships, freelancing, and the "gig economy"—all of which turn more of the worker's "whole lifetime...into labor-time" (Marx, 1867). Automation, so long as it takes place in the "totality" of capitalism, too often destabilizes livelihoods rather than delivers freedom from stultifying jobs—a phenomenon I-O psychologists have yet to fully explore.

3. *Alienation*: Alienation is intimately tied to automation. Defined by Marx (1867) as "a definite social relation between men, that assumes, in their eyes, the fantastic form of a relation between things," alienation captures the sense of estrangement we often feel at work (p. 72). For Marx (1844), this estrangement is fourfold: estrangement from the work process, from its product, from fellow producers, and from the self (or what Marx calls our "species being"). Today, we suffer this latter aspect of alienation most egregiously in the new forms of "immaterial labor" proliferating in the service economy, labor that demands we bring more emotion and authenticity, and generally more "life" onto the job (Boltanski & Chiapello, 2003; Hochschild, 1979). Put simply, when work becomes no longer simply "what we do," but "who we are," our relation to work becomes existentially fraught (Fleming, 2013). As I-O psychologists, we would do well to examine Marx's concept of alienation further, especially in the midst of increasingly precarious work that leaves the worker more exposed to the vicissitudes of the market.

4. *Ideology*: Marx helps us understand, appreciate, and ultimately call into question the ideologies that shape our thoughts, attitudes, and behaviors. For Marx, ideologies are sets of ideas largely outside of our awareness that reinforce relations of domination and subordination (Gramsci, 1971; Thompson, 1984). In I-O psychology, a focus on ideology would greatly complement the recent surge in implicit bias research (Banaji & Greenwald, 2016; Ross, 2014; Steele, 2011) and provide this research with some much-needed political heft. Ideologies, unlike implicit biases, have a material dimension: "The class which has the means of material production at its disposal, has control at the same time over the means of mental production" (Marx, 1845a, p. 78). Ironically, then, to fully grasp the material dimension of implicit bias requires an appreciation of I-O psychology's own implicit bias, which is to unwittingly reduce socioeconomic problems to individual problems (Nord, 1974).<sup>1</sup>

5. *Conflict*: Marx asserts that society advances through struggle and welcomes healthy conflict to propel humanity forward. As I-O psychologists, we could benefit from embracing the friction caused by a more robust dialectic of ideas. We can find guidance here in the critical scholarly tradition in the social sciences; a tradition strongly influenced by Marx that values critique as a catalyst for

change. Moreover, this tradition provides the conceptual tools needed to uncover the entrenched biases in our field and, in doing so, offer fresh perspectives on theory and practice (Gerard, 2016). “The philosophers have only interpreted the world, in various ways; the point is to change it,” declares Marx (1845b, p. 423). Compare this to Lewin’s (1951) famous “there is nothing so practical as a good theory” (p. 169). Arguably, there is nothing so vital for good theory—and good practice—as the belief that another, more equitable world is possible.

6. *History*: Above all, Marx (1844) instills in his readers an appreciation of history, and particularly a working history: “the whole of what is called world history is nothing more than the creation of man through human labor” (p. 357). With this appreciation comes perspective on our current working world, which will most likely not be our last. As I-O psychologists of the 21<sup>st</sup> century, we would do well to ask ourselves: Does our field have a life outside of the current socioeconomic system or must it necessarily continue to serve it? (Baritz, 1960).

Now of course, Marx was arguably not right about a number of things. His labor theory of value has long since been abandoned by economists (Horwitz, 2015), whereas his overconcentration on structural relationships continues to frustrate otherwise sympathetic psychologists (Parker, 2007). Then there’s the claim to Marx’s name in 20<sup>th</sup> century political history—from Leninism to Stalinism to Maoism—all of which were misbegotten endeavors, to say the least. But rather than default to knee-jerk dismissals of Marx, we would do better to learn from the Marxian-inspired debates now thriving in sociology (Bhambra, 2016), economics (Piketty, 2014) and even management (Adler, 2008; Fox, 2012). Hardly the menace and boogeyman of capitalism, Marx is a profoundly insightful theorist who deserves our attention.

Returning to Lewin, while we may never know just how his “brilliant insight” would have changed the trajectory of our field (Cartwright, 1979), we can infer that what he continually saw in Marx was an effort to account for humanity’s bigger concerns—social, political, and technical—concerns omitted from the psychology of Lewin’s day and arguably still omitted from the I-O psychology of our own. Ultimately, however, whether Marx was right or wrong cannot be taken for granted. Each of us must confront his ideas afresh, and we have Lewin to thank for leading the way.

### Note

- <sup>1</sup> More recently (and encouragingly), we have begun to acknowledge this bias in relation to the field’s longstanding neglect of those living in the deepest forms poverty (Gloss, Carr, Reichman, Abdul-Nasiru, & Oesterich, in press), but we have yet to acknowledge the systematic failures of capitalism at the root poverty—a tell-tale sign of an ideology still at work.

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### **ATTN: Technology Training Is the Need of the Hour**

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*Author Note*

This submission was presented as an Alternate Type Session at the 2016 SIOP Annual Conference in Anaheim, CA. We decided to submit this to *The Industrial Psychologist (TIP)* after receiving positive feedback from the attendees, especially I-O graduate students.

We would like to thank **Jason Marks** (researcher at Amazon.com, Inc.) and Sonali Karnik (postdoc research scholar at Illinois Institute of Technology) for their reviews and feedback on the manuscript.

As we begin this article, we cannot help remembering a specific scene from the movie “Hidden Figures” when Dorothy Vaughan walks back from the IBM room to her desk. When the new electronic systems are brought in to replace NASA’s human computers, Dorothy is the first one to recognize the threat; she begins to learn and subsequently trains her staff in FORTRAN programming and coding. This is perhaps an allegory of the role of technology in jobs today. The advent of technology has changed the landscape of the modern workplace, and it will continue to do so! In this article, we have outlined how technology and I-O interact and what that means for I-O graduate students. We are building a case for technology-related training to develop well-rounded I-O professionals.

Every organizational operation (e.g., selection, training, performance management) has undergone a significant revolution due to changes in technology-enabled systems (Ensher, Nielson, & Grant-Vallone, 2003). It is no surprise that technology has consistently been listed on SIOP’s Top 10 Workplace Trends. Although it has dropped off [this year’s list](#), it is certainly a part of other trends (e.g., #3 Big Data and #4 People Analytics). For those who would like to know more about how it all began, we recommend you read Craiger’s (1997) wonderful review of how technology in organizations evolved in the 20<sup>th</sup> century.

### **Role of Technology in Organizational Operations**

Technology is changing I-O practices in a number of ways (Harris & Hollman, 2013). As an example, take **recruitment**, which has become more targeted and strategic in nature (Madia, 2011). A short time ago, the use of various e-recruitment systems and job boards exploded, creating a global platform for job advertisements. Web 2.0 came next, followed shortly by social media and now mobile apps, placing new imperatives on targeted recruiting. Additionally, organizations have been using social media to recruit for over a decade (Singh & Finn, 2003).

In the area of **personnel selection**, we have been introduced to more “gamified” assessments, virtual interviewing platforms, and interactive simulations (Fetzer & Tuzinski, 2014; Tonidandel, Quiñones, & Adams, 2002). The popularity of these selection tools is growing due to their higher fidelity, as well as their higher validities in relation to many other robust selection methods (Lievens & Patterson, 2011; Thornton & Cleveland, 1990; Tsacoumis, 2007). Big players in I-O consulting (e.g., [DDI](#), and [SHAKER](#)) have developed unique technology-enabled hiring solutions for their clientele.

In **training and development**, web-based, virtual training and assessment centers are gaining popularity (Harris & Hollman, 2013). Organizations are making use of intelligent computer-based tutoring systems, simulator-based performance measurement software, mobile tools for capturing real-time observer metrics, and multimodal systems that unobtrusively capture teamwork and infer team states (such as cohesion, trust, and shared understanding). Check out [Moonbase](#), NASA’s simulation game that teaches soft-skills to flight controllers and new astronauts.

### **Technology and I-O Psychology**

Needless to say, many of today's I-O practitioners are required to work with information technology (IT) professionals on a regular basis. For instance, I-O practitioners working for consulting firms that offer computer adaptive, high-fidelity assessments to their clients collaborate with IT personnel to develop the digital requirements for such platforms. Likewise, I-O practitioners working in the area of training and development frequently collaborate with IT personnel in the design and development of their technology-enabled training solutions. Taking things a giant step further, there is growing interest in using Automated Item Generation (AIG) to design computer software that builds test items on the fly (Doebler & Holling, 2015). While I-O practitioners who develop such tests are required to have knowledge of IRT software, they may also need to communicate with IT folks during the data acquisition, storage, and retrieval processes. Similarly, with increasing momentum of big-data for predictive modeling (Putka & Oswald, 2015), many I-O practitioners are required to use specialized analytics software for large datasets (e.g., SAS Enterprise Miner, SAS Enterprise Miner, Oracle Data Miner, Oracle R Advanced Analytics for Hadoop).

All of this growth in technology means that I-O practitioners are in need of more technology-specific KSAs. These KSAs range from basic word processing to more sophisticated technology in areas like multimedia development (e.g., Final Cut, Adobe Premiere, Prezi), simulation design (ITyStudio, iSpring TalkMaster), data storage and retrieval skills (e.g., MySQL, Hadoop, Hive, Mongo DB), and software development processes (e.g., Agile, Waterfall). Entry-level I-O job postings frequently include intermediate to advanced knowledge/experience with analytical software (e.g., SPSS, SAS), human resource software (e.g., HRIS, ATS), database software and query language (e.g., SQL, Access), and others. In our experience, it is generally easier to learn these technologies on the job if one has had some training and/or hands-on experience with them during graduate school. So, we are curious, are I-O graduate schools adequately preparing their students to tackle these challenges head on?

### Technology-Related Training in I-O Psychology

A fairly recent article in *TIP*, Reinecke and Toaddy (2016), offered a glimpse of the future of work and the changing role of I-O psychology. What resonated with us was their plea to adjust skillsets to proactively accommodate the changing responsibilities. We speculate that the new breed of I-O practitioners will be better prepared to handle these changes *if* they are given adequate technology-related training during graduate school.<sup>1</sup> The recently developed and published [Guidelines for Education and Training in Industrial-Organizational Psychology](#) (SIOP, 2016) sporadically mention technology-related skills, which we believe do not do justice to the importance of this issue.

To gain some perspective on the issue, we solicited a fairly diverse panel of four individuals representing early, mid, and late career stages in I-O research or practice. Our panel was comprised of SIOP members **Milt Hakel**, **Zack Horn** (StitchFix), **Meisha-Ann Martin** (Flextronics), and **Luke Simmering** (Legasus Group). As the senior panelist, Milt provided us with an account of the evolution of technology in the I-O arena, whereas one of our younger panelists, Luke, presented his perspective on how technology has become ingrained in various spheres of I-O work, especially personnel selection. The other two panelists, Meisha-Ann and Zack, offered valuable advice on how to make the most of grad-school experience in order to prepare oneself.

*Disclaimer:* We do not claim to offer you any novel information as discussions surrounding the role of technology in I-O psychology have been going on for decades. Our sole aim is to offer you food-for-thought on technology training in I-O psychology.



## Sharing Points of Views

As someone who retrospectively realizes that his decision to avoid computer programming (i.e., FORTRAN) during graduate school was based on convenience, but carried large opportunity costs, Milt solemnly declared that technology has become an integral part of his work. Having served as an academician most of his career, Milt thinks that research design and quantitative analysis have been the cornerstones of I-O psychology programs, and that they still are. What has changed in the world of I-O psychology is the sheer quantity of information to be mastered and the rate at which that quantity is growing, subsequently changing the straight-out-of-school KSAs needed. Milt adds that I-O psychology has entered the era of *big data* and ubiquitous computing, and that this necessitates the need for technology training for I-O graduate students and professionals.

Indeed, there has been a recent push towards *big data*, adds Zack. But organizations now want to collect not only “big” data, but “better” data. Remember the three Vs of big data – *volume*, *variety*, and *velocity*? Now, add another V – *veracity*! Zack believes, that’s where I-O comes into picture. His current role involves working with a team of data scientists to accomplish this goal. To him, succeeding in this role would have been difficult without his curiosity and sheer affection for technology. Familiarity with technology, therefore, has been critical. Zack believes that marrying technological capabilities with I-O expertise can create new possibilities for more intelligent, unobtrusive, and valid training and assessment techniques, and that this is all the more reason to introduce technology training in I-O psychology graduate programs.

Viewing the role of technology from a selection and assessment perspective, Luke (another tech-enthusiast) mentions that knowledge of best practices (e.g., test development, validation, data analysis) is a must-have. However, the expectation to understand the technological delivery of the assessments is becoming more and more important as conventional paper-pencil employment testing is becoming less common. Consequently, technology has changed the work of external consultants due to the diversity in tools, technological processes, and client expectations. As a consultant in a SaaS-based company, Luke constantly explored ways to improve his competency around technology.

When asked about the role of technology in I-O, Meisha-Ann recollected some of her experiences in her first post-graduate I-O role. Her role involved utilizing human-capital metrics and analytics to improve people and firm performance. She believes that what helped her to evolve, survive, and thrive in the new environment – an ability to understand and to easily navigate between technology and I-O psychology – may help young graduates too. Nodding in agreement, Luke adds that such tech-savviness enables I-O psychologists to innovate beyond the boundaries of their own discipline, contributing successfully as a part of multidisciplinary teams.

On the topic of multidisciplinary teams, all three practitioners on the panel (Meisha-Ann, Zack, and Luke) seemed to agree that applied I-O often involves either working with or managing such teams. Depending on the scope of any particular project, these multidisciplinary teams may involve different combinations of I-O psychologists, sales/marketing managers, cognitive scientists, HTML developers, implementation consultants, computational linguists, mathematicians, software engineers, use-experience specialists, user-interaction designers, and graphic designers, to name a few.

Our panelists acknowledge that the complexity of the within-team mix of KSAs and the external/internal client’s expectations about deliverables add up to a steep learning curve, especially when any facet of technology is part of the big picture.

## Developing Technology KSAs

If you are still reading this article, chances are you are pondering where to start and how to gain the technology-related knowledge and skill sets. Our panelists, Milt, Zack, Meisha-Ann, and Luke, have offered some valuable advice here:

1. “The surest way to learn a foreign language is to speak it,” said Milt, advising students to get hands-on applied project or internship experience to learn technology-related skills.
2. In addition to knowing the basics of I-O and mastering the craft, Meisha-Ann advises students to cultivate intellectual curiosity and develop an open mind. Learn from data scientists from other fields.
3. It may be helpful to take an IT course, says Luke. During the SIOP 2016 session, he shared with attendees his [“technology for I-O” syllabus](#).
4. Zack seconded Luke’s opinion; he, in fact, took college courses in web design and coding. Upon joining the data science team at Stitch Fix, he learned SQL and took a course in R on [datacamp.com](#) (which he highly recommends).

In addition to the advice from our four panelists, here are some more tips. Some of these tips have tremendously helped graduate students (which include one of us) in the past:

5. During the writing of this article, we noticed that Richard Landers has begun writing a TIP column called Crash Course in I-O Technology. Having read his [first article](#) on R, we certainly think it is a good starting point!
6. Read technical books and magazines. Although buying them can be expensive for a graduate student (sigh!), look for older editions or free copies (e.g., Amazon 1¢ plus \$3.99 shipping).
7. Use technology to learn technology. In other words, the internet is a great source of information. Check out websites like [Coursera](#), [edX](#), and [Codeacademy](#) for free IT courses.
8. Seek a mentor with expertise in both I-O and technology.
9. Familiarize yourself with IT-specific jargon; make conscious efforts to build your IT vocabulary. This is likely to happen naturally as you learn.
10. Once you have acquired technology-related KSAs, deliberate practice is necessary to master them. Practice programming, writing codes (R and Python have great online support), building websites (learn a little HTML or PHP), using different analysis or data visualization software (Tableau is a popular choice if you’ve already mastered Excel).

Remember what Milt said, “The surest way to learn a foreign language is to speak it,” and, we add to it by saying “learn to speak it well by practicing *a lot*.”

Job seekers (especially fresh out-of-school candidates) are often asked: “What do you bring to the table?” We believe that unique technological skills, in addition to the required I-O-specific KSAs, will provide I-O job-seekers with a competitive advantage. If anything, technology-related KSAs probably won’t hurt your chances.

We would like all of you, especially graduate students and I-O educators, to give this topic some serious thought. Additionally, we would like SIOP to consider I-O technology in its *Education and Training Guidelines*.

Note. Please take this [short survey](#) to help us with our initiative(s) on technology training in I-O psychology. Additionally, if you feel strongly about this issue and would like to share your thoughts, please email us: [bbbelwalkar@nola.gov](mailto:bbbelwalkar@nola.gov) or [tilman@latech.edu](mailto:tilman@latech.edu).

Note

<sup>1</sup> During conversations with one of us, Sonali (one of the friendly reviewers) remarked that schools cannot possibly prepare students for everything. Sometimes, students have to proactively learn and develop new skills. We thought that her point of view is worth mentioning although it is different from that of ours.

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## **Growing Smarter in Work Design by Getting Brainy Through Organizational Neuroscience**

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In this issue, Sharon Parker and I have teamed up to begin to answer two common questions about organizational neuroscience (ON). Why should I bother with ON? How would I use ON? To this end, we discuss an example to illustrate the value added of an ON approach to a classic topic in I-O psychology, namely work design. We focus on research in our example. For an excellent list of ON examples with practical utility see [The Bridge column in this issue of TIP](#).

[Sharon Parker](#) is one of the world's leading experts in work design and she's currently working on several streams of research to update the field via the [Centre for Transformative Work Design](#). She has published in *Annual Review of Psychology* and *Academy of Management Journal* to name a few. She is a Fellow of SIOP and has recently been awarded an [Australian Research Council Laureate Fellowship](#). To say she's qualified to coauthor this issue is a massive understatement!

## **Areas of Work Design Ripe for ON**

Work design's relevance to all organizations is apparent in its definition: "the content and organization of one's work tasks, activities, relationships, and responsibilities" (Parker, 2014, p. 662). As Parker has argued in her work design growth model (WDGM), work design can result in cognitive, moral, and identity change and development. To illustrate the powerful role of ON, we focus on the specific question: How might work design foster cognitive change and development of workers throughout their lifespans? In addressing this broad question, we recognize that cognitive change occurs across different time scales, underpinned by different neural mechanisms. On the one hand, there is some evidence from longitudinal population studies that work design might affect longer term cognitive functioning via affecting neural structures and processes. For example, Kröger et al. (2009) found that over the long term, high complexity of work with people and things was protective of dementia and Alzheimer's disease.

On the other hand, such change would need to be underpinned by shorter-term and more episodic cognitive change and neural processes. Complexity implies novelty (Park & Reuter-Lorenz 2009), which means the brain needs to develop new pathways to adapt to new, and discrepant cognitive challenges. Work design can shape employees' engagement in perspective-taking (Parker & Axtell 2001), which may relate to changes in mirror neuron activation. For example, work designs with "people complexity" of self-managing teams, fosters perspective taking which, over the long term, accumulates to enhance individuals' epistemic cognition and increase cognitive complexity. Additionally, the default mode network (DMN) is related to global processing, creativity, empathy and perspective taking as well as openness to stimuli (Friedman, Jack, Rochford, & Boyatzis, 2015).

It's likely that different mechanisms, with distinct neurological underpinnings, link work design to cognitive outcomes. However, there has been little or no attempt to link systematically work design to neural changes, either in the short-term or the longer term. Such research will benefit from several features of ON.

### **How Would You Use ON?**

Although conducting ON research has similarities to conventional research approaches, we illustrate the differences here. After reviewing the literatures in work design and neuroscience, the type of hypothesis you can test depends on the type of neuroscience tool you use to measure neural activity. Three types of hypotheses (hemodynamic, neuronal, psychological) can be tested with fMRI. Hemodynamic hypotheses focus on the hemodynamic response itself, (e.g., "The hemodynamic response, i.e. BOLD signal, associated with presentation of video stimuli designed to elicit empathy will differ from the hemodynamic response to visual, written stimuli designed to elicit empathy.") Neuronal focus on neural activation in response to particular stimuli, (e.g., "Viewing videos of others experiencing unpleasant emotion is associated with activation in the insula, and dorsomedial prefrontal cortex and temporoparietal junction"). Psychological hypotheses focus on psychological processes, (e.g. "Work design that requires workers to engage in complex, novel, perspective-taking over the long-term will increase epistemic cognition by leveraging neuroplasticity that is associated with repeated activation in mirror neurons and the DMN.") We continue with this psychological hypothesis as our example of how ON can be used in work design.

In order to fully test this hypothesis, we need to investigate both shorter-term neural processes and longer-term neural changes. Focusing first on the longer-term link between work design and cognitive development, we propose tracking changes in the brain (structure and function) alongside measuring work design and cognitive functioning every few years for several years. A benefit of ON is that good design means power can be high, and where recruitment can be difficult for longitudinal studies, sample sizes can be smaller than is typical in I-O psychology. A second benefit of the ON approach is that we would be able to measure within-person changes that participants cannot self-report. This access to structural and functional changes over time can help us determine with more precision, another benefit of ON, what neural mechanisms connect complexity and novelty, (e.g., self-managed teams) in work design with favorable cognitive development (and avoid mental conditions such as Alzheimer's. Neuroplasticity explains how neural connectivity change over time and likely can begin to answer how neural mechanisms connect short-term processes with long-term, more stable changes in cognitive development in workers.

Second, a shorter term study could assess neural responses to different work design simulations. For example, the study may simulate three conditions with experimental tasks that require teamwork and

perspective taking, teamwork without perspective taking, and solo work that has the same level of technical difficulty to match cognitive complexity. ON widens the construct domain to include neural variables, which can be used to establish convergent and discriminant validity. In this example, results can be compared with data from Bagozzi's et al. (2013) salesperson theory of mind scale as well as their fMRI results to validate regions of interest (active brain areas).

In addition to the benefits we described, using the ON approach also brings new and different: logical assumptions (e.g., reverse inference), research designs (e.g., event-related), tools for data collection (see Balthazard, 2015), data (e.g., blood flow), research team members (e.g., technicians), and ethical considerations. Neuroimaging may reveal medical issues such as brain tumors, though rare, this is possible and needs to be handled appropriately. It's good practice to evaluate the quality of the research for several things in addition to good design as practiced in I-O psychology. Here's an example of a checklist if we used fMRI (Huettel, Song, & McCarthy, 2008) for our study of shorter-term neural processes:

1. Evoke the specific cognitive processes of interest. What specific cognitive processes will be elicited by each stimulus in the experiment?
  - a. The stimuli would be the experimental tasks that require teamwork and perspective taking, teamwork without perspective taking, and solo work that has the same level of technical difficulty to match cognitive complexity. Each can include images, videos, auditory sounds, and button pressing for participants' responses. Importantly, our challenge is to isolate perspective taking as *the only difference* between teamwork and perspective taking compared with the other conditions.
2. Choose stimulus conditions and timing in order to *maximize* changes and *minimize* correlations among cognitive processes of interest.
  - a. This may include clumping together experimental tasks that involve perspective taking, then giving those neural functions a rest by presenting experimental tasks that require solo work without teamwork or perspective taking.
3. Measure behaviors that could be connected to neural activity.
  - a. Behavioral outcomes that may result from epistemic cognition development: sales, customer retention, strength and size of professional network, and speed of decision making.
4. Maximize efficiency by choosing one of three design options: blocked (to research what neural activation arises), event-related (to research timing and nature of neural activations), mixed (to research both).
  - a. If we want to confirm what neural activation is associated with teamwork and perspective taking during work, then we could use a blocked design, where we repeatedly present that type of work task. Then focusing on neural differences across types of work design, we could minimize correlations among cognitive processes of interest through counterbalancing presentation of the conditions.

Our example merely scraped the surface of considerations to make when using fMRI for ON research. See Ward, Becker, and Reeck (forthcoming) for a more in-depth example of ON research using fMRI. Beyond fMRI there are many options for ON research. EEG, fMRI, MEG, and TMS are several neuroscience tools that vary by temporal resolution (ability to measure fast changes over short durations, e.g., milliseconds) and spatial resolution (ability to measure precise, tiny segments of neural tissue, e.g., millimeters).

## Conclusion

Work design has several areas ripe for integration with ON that if successfully researched, we believe, will propel work design into a new era in which people will be smarter about work design because we've begun to leverage our tools to better understand people's brains at work. This depth of understanding can expand the breadth of impact that smarter work design can have on our neural development and on our collective consciousness.

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## The Bridge: Connecting Science and Practice

**Column Editors: Craig Wallace, Oklahoma State University; Lynda Zugec, The Workforce Consultants; and Mark L. Poteet, Organizational Research & Solutions, Inc.**

“The Bridge: Connecting Science and Practice” is a *TIP* column that seeks to help facilitate additional learning and knowledge transfer in order to encourage sound, evidence-based practice. It can provide academics with an opportunity to discuss the potential and/or realized practical implications of their

research, as well as learn about cutting edge practice issues or questions that could inform new research programs or studies. For practitioners, it provides opportunities to learn about the latest research findings that could prompt new techniques, solutions, or services that would benefit the external client community. It also provides practitioners with an opportunity to highlight key practice issues, challenges, trends, etc., that may benefit from additional research. In this issue of the column we are pleased to coordinate with Rob Snyder in sharing a cutting edge practice and trend which I-O scientists, practitioners, and academics may find beneficial to learn more about: applied social cognitive neuroscience (ASCN).

### **Bridging I-O Science and Practice With ASCN**

**Rob Snyder**  
**Northern Kentucky University**

*I enjoyed reading the previous TIP columns on "The Bridge: Connecting Science and Practice" that have appeared thus far. I am pleased to see that SIOP is strengthening its commitment to reducing the gap between these two often independent domains.*

*In my opinion, there is no better—or more impactful—example of science and practice being "bridged" today than the rapidly increasing frequency with which business practices are being changed (resulting in higher performance) based directly on the findings of research in the neurosciences. Over the past 10 years, I've had the opportunity to watch this revolutionary trend grow and to experience its power first-hand in my work with private and public organizations, large and small.*

Brain science's transformation of management isn't just about another new technique or model. It's about shifting our paradigm to incorporate the hard data of science and fundamentally changing the way we think about business. When we do, we're able to gain access to an integrated set of management practices that really do deliver on the promise of superior performance.

—Charles S. Jacobs, in *Management Rewired*

What Jacobs has called "brain science" is, of course, known more formally as applied social cognitive neuroscience (ASCN). ASCN attempts to answer the same questions—why people act the way that they do in any set of circumstances, including while at work—for which industrial-organizational (I-O) psychologists, working in parallel, have sought answers for decades. One major difference between the research streams is the tools that are typically used to seek answers: In ASCN, a variety of brain activity recording devices as opposed to the traditional surveys, interviews, observations, experiments, and other methods that are frequently used within I-O psychology (Snyder, 2016).

Recent, rapid and extraordinary innovations in mobile, dynamic brain-activity-recording technology used in ASCN have burst the outer boundaries of our knowledge of the true causes of behavior. Metaphorically speaking, these improvements in neuroscientific tools have been compared to the invention of the microscope in biology (Rock, 2013). Neuroscientists can now "see" things that most would have been unable to imagine. In marketing research for example, experts no longer have to rely on consumers' notoriously error-prone and unreliable self-proclaimed reasons why they chose one product rather than another. Now, brain activity (including "behavior" of the visual system) recording devices can *measure more directly and in real time* what actual shoppers attend to (or fail to attend to) in promotional displays, on product labels, and so on, and simultaneously determine the relative amount of interest the brain is showing in response to the various perceptions that are being



processed. In fact, it is now possible for technology to determine that a person has made a product choice prior to that person's conscious recognition of the fact (Shenoy, Sahani & Churchland, 2013).

ASCN research is changing what we thought we knew. By accessing directly the neurological/physiological basis of behavior, it has confirmed the validity of many previously held beliefs about behavior in the workplace. For example, it has demonstrated - albeit more definitively - that interviewers make tentative - but difficult to overturn - employment decisions very, very shortly after each interview has begun<sup>1</sup> (Waytz & Mason, 2013). Additionally, ASCN studies have demonstrated that some widely accepted ideas in social and organizational psychology (and many common business practices) run contrary to what we now know to be true. For example, in graduate school I learned that if you want to change a person's behavior, you must first demonstrate why the person's current behavior is wrong, ineffective, or, at the very least, far from as good as it could be. Thanks to ASCN, we now know that if we do that, it's likely that the person's brain will secrete noxious neurochemicals that can powerfully increase resistance to a proposed change (Carey, Mansell & Tai, 2014; Pulakos, Hanson, Arad & Moye, 2015; Snyder, 2016).

Furthermore, ASCN has provided solid, hard-science evidence of many *underlying causes of behavior that are counterintuitive*, if not merely far afield from current "knowledge" and management practice. The following are only a few of such findings provided in my recent book on the ASCN of leading large-scale organizational changes (Snyder, 2016). For each, I have inserted (in bold and in brackets) a few samples of specific functions or duties of managers or leaders where these findings might be relevant; I could have inserted leading change in every one:

- Managers can become more influential and perceived as better leaders by speaking less (Rock, 2006) [Leadership; performance management]
- People are more likely to come up with creative solutions to a problem when they are forced to not think about it (i.e., the problem; Van Hecke, Callahan, Kolar & Paller, 2010) [Problem solving, innovation; decision making]
- When a person says "maybe" in response to a request for assistance, other people are likely to hear "yes" (i.e., they record it in their brains and remember it as assent; Sharot, 2012) [Negotiation; conflict resolution]
- In high-stimulation, frenetically paced jobs (e.g., traders on the floor of a stock exchange), neurochemical changes in people's brains can cause their decision making to become extremely reckless, without their conscious awareness of the change (Bennett, 2012) [Decision making, stress management, negotiation]
- Talking aloud to one's self can cause a nearly instantaneous reduction in anxiety and facilitate creativity (Lieberman, 2010) [Stress management, innovation]
- A single, not-so-recent memory is very likely to include erroneously things that happened at different times (Medina, 2008) [Leadership; performance management]
- Contrary to what has been taught in business schools for decades, under certain circumstances, hunches and emotion can increase decision making effectiveness (Waytz & Mason, 2013) [Strategy; decision making]
- Even though a belief statement can be blatantly false, the more often people hear that statement, the more likely they are to come to believe that it is true (Wang & Aamodt, 2008) [Communication; attitude change; sales]

Findings such as these have important implications for how we can help people at work (and the organizations for which they work) improve performance and, indeed, the overall culture of the workplace. In my particular sliver of OP consulting, I've seen first hand how managers, when made aware of the discoveries of ASCN research, are much better equipped to influence the variables that determine whether people resist or embrace change and how, and under what conditions, people learn best—that is, how people acquire, retain, retrieve and apply knowledge most effectively and efficiently (which is, of course, a very crucial component of large-scale change effectiveness).

Am I suggesting that I-O's whip out their magnetoencephalographic instruments when conducting their work? Of course not. The good news is that it isn't necessary to be a neuroscientist or to conduct neuroscience *research* in order to fruitfully apply existing ASCN findings to management and business *practices*. In addition to the aforementioned examples of ASCN applications in consumer research and employment interviewing, consider these performance-enhancing, neuroscience-based changes in business and government practices:

After Aetna began offering meditation classes during work hours, healthcare costs dropped significantly and employee perceptions of well-being shot up. Currently, about 25% of U.S. employers offer such classes and the percentage is expected to double in the next two years.

Work satisfaction and employee engagement surged once Juniper Network redesigned its performance management system based on neuroscience principles.

Auto insurers working with the American Automobile Association are successfully using the accumulated results of research conducted by cognitive neuropsychologist, Dr. David Strayer (U. of Utah) on the neurophysiology of driver distraction to convince state governments to greatly stiffen penalties for texting while driving. For example, texting while driving is now a felony in Alaska and Utah.

Food scientists use neuroscience findings on the brain's experience of "bliss" to maximize the addictive characteristics of snack foods.

Airports in Houston and other major cities were able to reduce complaints about long wait times in baggage claim by scheduling larger planes (with lots of luggage) to arrive at gates that were as far away from baggage claim as possible. Brain-wise, time passes more quickly when you are moving.

Knowing that your brain prefers the easier of any two tasks, state motor vehicle offices were able to quadruple the number of organ donors by changing the relevant form from "please indicate below that you are willing to be an organ donor" to "you will be considered an organ donor unless you opt out by answering the questions below."

Our brains like us to compare favorably with those around us. A growing trend among utility companies is to provide information on monthly bills about how much energy is used in your house versus those of your neighbors. Invariably, average utility usage declines.

Readers whose ASCN appetites have been whetted here can find a well-spring of sources for additional information and insight in iMOTIONS' list of "Top 50 Human Behavior Experts to follow during 2017." It can be accessed at: <https://imotions.com/blog/top-50-human-behavior-experts/>. The online magazine,

Scientific American Mind, and the websites, "The Intentional Workplace" and "Neuroleadership" might also be of interest.

### Note

<sup>1</sup> Rather than allowing: (a) the initial impression or tentative decision to operate below the level and (b) the interviewer's brain to "try" to confirm it, interviewers today are typically trained to bring the impression to a conscious level and work mindfully to disconfirm it.

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### Calling Potential Contributors to "The Bridge: Connecting Science and Practice"

As outlined in [Poteet, Zugec, and Wallace \(2016\)](#), the TIP Editorial Board and Professional Practice Committee continue to have oversight and review responsibility for this new column. We invite interested potential contributors to contact us directly with ideas for columns. If you are interested in contributing, please contact either Lynda ([lynda.zugec@theworkforceconsultants.com](mailto:lynda.zugec@theworkforceconsultants.com)) or Craig at ([craig.wallace@okstate.edu](mailto:craig.wallace@okstate.edu)).

## Orlando Conference Highlights

**Zack Horn, Program Chair**  
**Daisy Chang, Conference Chair**

Our record-setting SIOP 2017 conference is just around the corner. Many new opportunities for learning and networking are featured at SIOP 2017, and here's your guide to the highlights in Orlando! For additional detail on sessions and speakers, see the [Conference Program article in the January 2017 TIP](#), or use [SIOP's searchable program](#).

### ***Throughout the Conference and Program***

- SIOP's amazing new mobile app keeps you connected to sessions, speakers, and attendees (powered by Whova)
- Over 960 combined sessions and posters!
- Over 620 posters across 19 poster sessions
- Theme Track (Thursday), HR Track (Friday), and Reproducible Research Track (Saturday)
- New "Featured Sessions" provide cutting-edge strategies and tips from Distinguished Award winners
- 62 Reproducible Research (RR) presentations – read more in this issue's [RR article](#)
- 39 sessions with Alternative formats (a new record!)
- 12 Communities of Interest sessions (Asia 3 on Thursday & Friday)
- 9 Master Tutorials
- 4 Debates (360-degree feedback, top performers, survey best practices, employee engagement)

### ***Wednesday***

Preregister for the excellent set of preconference activities—including informative and inspirational workshops and consortia. The Newcomer Reception is from 5–6pm in Northern Hemisphere E3-E4 and all are welcome to join us in celebrating the start of the conference at the welcome reception from 6–8 pm at the Swan and Dolphin Pool Deck.

### ***Thursday***

Opening Plenary: Kick the day off with a must-see opening plenary session. We'll cheer for award winners and look to the future of I-O with President **Mort McPhail**.

The Thursday program starts with a fantastic five-session Theme Track, "*Driving Breakthroughs by Anticipating What's Next: Planning for the Future of I-O*" in Southern Hemisphere I. The afternoon includes a Featured Session with award-winning strategies for "*Building a Pipeline and Sustaining Success as an I-O Psychologist*," and an Executive Board session detailing how SIOP can engage in workplace research.

Thursday Evening Networking Reception: Enjoy hors d'oeuvres and network with the top poster winners at 6:00pm in Northern Hemisphere CD.

### ***Friday***

Join the Frank Landy 5K Fun Run at 7 am on Friday, April 28, 2017. The event will begin outside the Dolphin Hotel, making it easy for you to roll out of bed, run (or walk), and return to the hotel quickly after you've finished.

Friday's many highlights include six Friday Seminars related to using mobile devices in testing and assessment, becoming better-informed consumers of research findings, diversity and defensibility, experience sampling, performance management reform, and converting social media into data.

The HR Practitioner Track in Asia 5 offers multiple top-rated sessions with applied strategies and CE credits. Two more Featured Sessions provide award-winning insights into "*The Future of I-O in Practice*" and thinking forward as "*Disruptors in the Field*," and a Master Collaboration session highlights useful skills we did *not* learn in graduate school. In addition, four additional Executive Board sessions include a

conversation with SIOP's leadership, building the ROI of I-O through IMPACT initiatives, updates to the revised *SIOP Principles*, and increasing SIOP's social media reach. An Alliance session explores ethical, rigorous, and relevant research.

At the end of Friday's program in Pacific BC, you'll find an edgy new event titled "*Shaken & Stirred*," which asks 15 thought leaders in I-O to provide insightful and entertaining answers to the simple question, "What if...?"

### **Saturday**

Saturday will close the conference programming just as strongly as it started, so make sure to stay the whole day! A new Reproducible Research Track in Asia 4 is featuring some of the highest-rated sessions at SIOP this year. Two Alliance sessions target the impact of technology on international recruitment and selection, as well as global contributions to 100 years of research in I-O. The final Executive Board session will focus on understanding I-O education and training from an international perspective.

4:30: Closing Plenary with keynote address by NASA Astronaut Dr. Stanley Love. Who better to help us gain perspective on the future than an accomplished astronaut!

6:00: Closing Reception: Make memories with your friends over amazing food and music at the Cuban-inspired Havana Nights Reception! This is a reception you won't want to miss!

## **Prepare to Impact the Future of I-O at SIOP 2017**

### **Tracy Kantrowitz, CEB**

Many attendees of the annual conference report that "staying current" is among the chief benefits derived from conference attendance. There is no doubt that hearing about the latest progress in your area of expertise or learning about new methods can have immediate impact on your work. In times of ever growing change, many of us are also looking to the future and how we can drive change and propel our field and careers to make ongoing and lasting impact.

This year's Theme Track will allow attendees to start planning now for the future. Through a series of provocative, interactive, and forward-looking sessions, Theme Track will bring President **Mort McPhail's** vision for the future to life. We will celebrate progress through the years, highlight ongoing initiatives that chart a course for the future, propose new frontiers and up-and-coming career paths, and debate what's really new on a variety of trending topics.

A "conference within the conference," Theme Track is a full day of programming that follows the opening plenary session. Sessions will be held back-to-back in Southern Hemisphere 1. We invite you to stay all day or attend only the sessions of most interest to you. CE credits may be obtained by attending the Theme Track.

The Theme Track committee (**Ted Kinney, Richard Landers, Valentina Lee, Samantha Taylor, and Lynda Zugec**) has assembled an exceptional lineup of presenters on a compelling set of future-oriented topics that will provide guidance and insight to all SIOP members on how to prepare for the future. The sessions include:

- Session 1 (10:30 AM): How the World Changes I-O as I-O Changes the World (Richard Landers, Chair)  
In this retrospective session, hear how our field has reacted to major changes and what role I-O has played in those changes. You will learn about the history of our field through critical reviews from thought leaders including **Gilad Chen, Miriam Erez, Steve Kozlowski, John Mathieu, Robert Ployhart, and Ruth Kanfer** on macro topics including international pressures and

globalization, paradigm shifts in psychology, the evolution of technology, war and conflict, and civil rights and social change. After presenting a brief, engaging historical account of these issues, presenters will discuss the future of I-O and HR given this broader context in a panel format, with questions taken from the audience.

- Session 2 (12:00 PM): Shaping the Future of I-O Through Multidisciplinary Approaches (Valentina Bruk-Lee, Chair)  
In this inspiring IGNITE session, presenters doing work at the intersection of I-O and other disciplines will present their stories of how multidisciplinary science is rapidly becoming a means of addressing the most pressing questions of our time. You will learn about some of the most imaginative solutions and inventions occurring in the field and find out why the future of I-O is multidisciplinary in this vibrant session from leaders in both academia and practice, including **Amy Grubb, Leslie Hammer, Ben Hawkes, Autumn Krauss, Steven Poelmans, Eduardo Salas, Jerry Miller, and Steven Rogelberg.**
- Session 3 (1:30 PM): As the Pendulum Swings: Debating What's Really New in I-O (Samantha Taylor, Chair)  
In this debate format session, you will gain insight on the future of I-O Psychology through contrasting perspectives on topics that have tended to "swing" in direction over the history of the field. Thought leaders will engage in a healthy and provocative debate on three trending topics: performance management (as discussed/debated by **Seymour Adler** and **Alan Colquitt**), I-O and data science (as discussed/debated by Aman Alexander and **Dan Putka**), and generational differences in the workplace (as discussed/debated by **Jennifer Deal** and **Eden King**). **Dennis Doverspike** will serve as moderator for the session.
- Session 4 (3:30 PM): Learning from "Career Visionaries" to Create Future Contribution Paths (Ted Kinney, Chair)  
In this panel discussion, you will learn about new and burgeoning career paths in our field as I-O capitalizes on its standing as a fast growing occupation. Hear from I-Os (**Alexander Alonso, Sarah Fallaw, Alexis Fink, Rick Jacobs, Elizabeth Kolmstetter, and Michael "Dr. Woody" Woodward**) who have pursued careers paths beyond the traditional and will provide guidance around areas of growing emphasis. Learn how to push the boundaries to pursue and craft roles that fit with ever-changing organization structures and dynamic definitions of work.
- Session 5 (5:00 PM): Predictions on the Future of Work (Lynda Zuec, Chair)  
In this capstone session, our featured speaker, **Libby Sartain**, will highlight the forces of change shaping the future of work and how business strategy relates to people strategy. Libby will share her insights, based on her decades of leading people practices at some of the world's premier organizations including Yahoo Inc. and Southwest Airlines. **Evan Sinar** will provide commentary on Libby's strategic insights to spark a reevaluation of how I-O can anticipate these forces of change shaping work to ensure our field prepares itself for the changing needs of organizations and employees.

At the conclusion of each session, attendees will be invited to submit predictions of their own and sign up to be part of future initiatives aimed at impacting the future of I-O. This information will be fed back in nearly real time throughout the day to share the membership's predictions about new frontiers in I-O. At the conclusion of the day, aggregated predictions and individuals interested in serving on future impact teams submitted will be shared with SIOP leadership to shape new initiatives that will benefit SIOP's efforts on impacting the future of I-O research and practice.

On behalf of the 2017 Theme Track committee, see you in Orlando!

## **LGBT-Related Functions and Programming for the 2017 SIOP Annual Conference**

**Katina Sawyer, Villanova University**  
**Steve Discont, Illinois Institute of Technology**  
**Ismael Diaz, California State University, San Bernadino**  
**Kristen P. Jones, University of Memphis**  
**Alex P. Lindsey, Indiana University–Purdue University Indianapolis**  
**Kenneth Matos, Life Meets Work Inc.**  
**Christian N. Thoroughgood, Villanova University**

The 32<sup>nd</sup> Annual Conference of the Society for Industrial and Organizational Psychology is almost upon us, with many of us convening in the Sunshine State of Florida the last weekend of April 2017. The SIOP LGBT Committee would like to give all those interested in LGBT issues in I-O psychology (whether you identify as LGBT or as an ally) a preview of the exciting events happening at this year's SIOP conference. Therefore, in this issue our column will provide a list of all LGBT related programming that you take part in at SIOP this year. This year has a lot of content to choose from within our committee's sphere of interest. All events below include their listed time, location, event format, and title. Also, this year will be the first year that we will have PRIDE badge tags available at the hospitality desk for you to be able to show your support at the conference. We hope you all have a wonderful and productive conference!

### **Thursday, April 27, 2017**

3:30 PM–4:20 PM, *Atlantic BC*, Poster Session: Work–Family/HR  
Poster 73-32: Work–Family Conflict in Same-Sex Couples

### **Friday, April 28, 2017**

8:00 AM–9:20 AM, *Australia 3*, Symposium/Forum: New Approaches in LGBT Research in I-O Psychology.  
*Winner of the Best/Lesbian/Gay/Bisexual/Transgender (LGBT) Research Award*

Papers in this symposium:

Microaggressions, Internalized Heterosexism and Burnout in Sexual Orientation Minority Workers

A New Measure of Work–Family Conflict in Same-Sex Couples

Work-Life Issues for Same and Different-Sex Couples

How Public Support for the LGBT Community Impacts Heterosexual Consumers

12:00 PM–12:50 PM, *Atlantic BC*, Poster Session: Inclusion

Poster 165-1: Impact of Workplace Context on the Experiences of LGBT Employees

Poster 165-2: Gay Male, Lesbian, and Heterosexual Leaders' Workplace Experiences

Poster 165-5: Crossover Effects of Sexual Orientation Disclosure at Work

Poster 165-21: What's Good for the Gander: How LGBT-Supportive Policies Benefit Employees

165-28: Professional Homosexual or Homosexual Professional? Sexual-Professional Identity Integration and Leadership

165-30: Sexual Orientation and Perceived Sexism Mediated by Gender Identity

3:00 PM–4:00 PM, *Australia 2*, Meeting: SIOP LGBT Business Meeting

4:00 PM–4:50 PM, *N. Hemisphere A3*, Panel Discussion: LGBT Inclusion in a Diverse World

6:00 PM–7:30 PM, *Americas Seminars Room (5<sup>th</sup> Floor in the Dolphin)*, Conference Event: Lesbian, Gay, Bisexual, and Transgender Committee and Allies Social Hour

### Saturday, April 29, 2017

11:30 AM–12:20 PM, *Americas Seminar Room*, Alternative Session Type: Creating a More Inclusive I-O Psychology

Presentation within this session:

LGBTQQAAI-Oh Bother! Sexual Orientation and Gender Identity Inclusiveness.

3:00 PM–4:20 PM, *N. Hemisphere E4*, Symposium/Forum: Don't Trust the B: Bisexual Stigma in Modern Organizations

Papers in this symposium:

Perceptions of Bisexual Employees within the Mixed Stereotype Content Model

Job Insecurity & Health: The Moderating Role of Sexual Orientation

LGBTQ Experiences in Healthcare: How Sexual Identity Matters

Perceptions of Bisexuality Disclosure in Job Applications

3:00 PM–4:20 PM, *S. Hemisphere IV*, Panel Discussion: Annual EEOC/OFCCP Practitioner Update

### The Modern App: #SIOP17 Program Preview: Technology Roundup for Orlando

Evan Sinar  
DDI

Tiffany Poeppelman  
LinkedIn

As we look back to our July 2015 year in review issue ([Blacksmith & Poeppelman, 2015](#)), we could see then, as clear as it is today, the vast influence new technologies are having on our I-O research and professional efforts. Given that the significant investments in technology continue across diverse sectors and industries, in turn impacting I-O psychologists and the workplaces in which they practice and conduct research globally, we wanted to provide a summary of this year's technology sessions to be shared at the [SIOP 2017 conference](#). In Orlando, we expect a diverse selection of research topics across all I-O content areas, including technology. The objective of this article is to not only help streamline your potential choices for technology sessions to attend at SIOP 2017 but to also shed light on related trends we spot and gaps in technology research suggesting areas to further delve into for SIOP 2018.

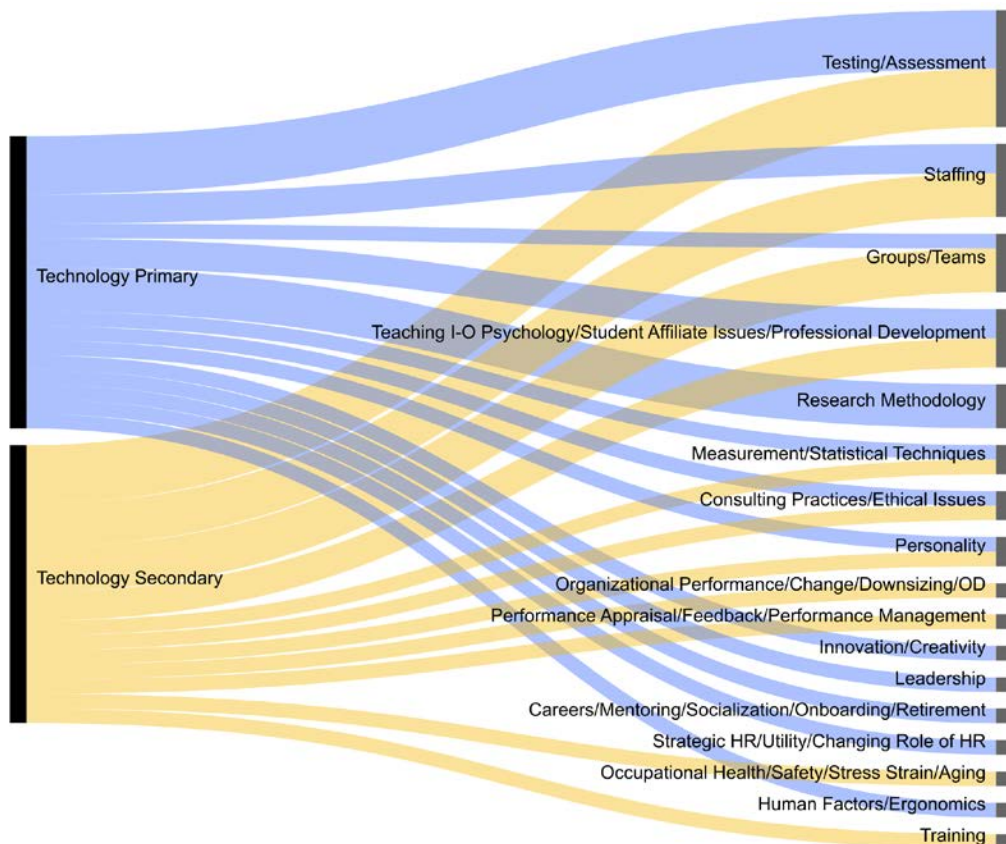
### Exploring SIOP 2017 Program Trends

To explore conference themes, we drew on the tagged content areas from all sessions submitted to this year's program. Overall, across 928 sessions at SIOP this year, **33** tagged technology as a primary content area (up from 30 in 2016 and 21 in 2015, its first year as a stand-alone content area), whereas **19** listed technology as a secondary content area (a decrease from 23 in 2016 and 27 in 2015). Two trends are evident: overall, a consistent number of sessions across the 3 years, but notably, a steady increase in the number of times technology was a **primary** content area. That is, technology is shifting from a sideshow to the center stage for many conference sessions.

Through the use of data visualization tools such as [RAWgraphs](#) (used to generate the trends graphic below), we show the most common topics associated with technology. The graph (a visualization type called an alluvial diagram) is based on data from all SIOP 2017 sessions that indicated technology as a primary or secondary content area during the submission process. It shows three types of data: First, the sizes of the black bars on the left show the relative frequency of technology indicated as a primary or secondary content area (in this case, slightly more often primary than secondary); second, the sizes of the black bars on the right show how often technology was linked to each content area as either primary



(blue) or secondary (orange); third, the width of the “streams” connecting the left bars to the right show how often each combination occurred. For example, whenever technology was linked to Research Methods, technology was always the primary content area, shown by the entire width of the Research Method stream being blue. As another example, technology was linked to Personality nearly equally often as primary and secondary, shown by the blue and orange streams flowing into Personality being almost identical in width.



**Figure 1. Content areas linked to technology**

Expanding from this initial view, we identify the topics falling into each of two categories: first, the most widely associated topics aligned with technology and second, those that are rarely or never linked to technology. Realizing that not all I-O topics will or should be technology related, it’s nonetheless our aim for this article to uncover what potential gaps exist and to raise the possibility of expanded scope and breadth of connections. Additionally, we propose research investigations for content areas within which technology is underrepresented, a guide for questions to ask presenters, and a list of recommended technology-focused sessions in Orlando.

### **Content Areas Most Linked (Relatively So) With Technology**

In looking at these sessions, it became clear there are five content areas (the largest five black bars on the right of the graphic above and discussed further below) that tend to be most often paired with technology. Though these numbers don’t rise above the single digits for any one paired content area, this wasn’t unexpected given the sheer number of possible primary–secondary content area

combinations among 34 potential topics. Putting the numbers below in context, the most common combination across the entire program was Testing/Assessment and Personality, occurring 22 times. The relatively low number of technology linkages, however, does suggest room for further investigation and discussion of technology's influence within the workplace.

1. **Testing/Assessment:** Of the 111 times Testing/Assessment was listed as a content area (58 primary, 53 secondary), 8 were associated with technology, making this the most commonly paired content area involving technology. Similar to findings in 2015, there continue to be significant technology advancements in the testing and selection space. Common research areas include advanced assessment and hiring techniques, gamification and mobile learning approaches, and work-life balance measurement. SIOP 2017 sessions track closely alongside accelerated company investment in more automated and measurement-rich mechanisms for selecting the right talent. Example SIOP 2017 sessions include:

- [“High-Fidelity Simulation Scoring-Practices: Tricks of the Trade Revealed!”](#) (alternative session type), submitted by **Bharati Belwalkar**
- [“Next Generation Assessment – The State of Innovations in Selection Science”](#) (panel discussion), submitted by **Joshua Liff**
- [“Can Video Games Reduce Faking in Selection Assessments?”](#) (poster; note that for posters, the program link is to the entire block within which this session appears), submitted by **P. Scott Ramsay**
- [“The Impact of Smartphone Usage on Perceptions of Work-Life Balance”](#) (poster), submitted by **Alicia Stachowski**

2. **Staffing:** Of the 71 times Staffing was listed as a content area (36 primary, 35 secondary), 6 were related to technology, which continues to have a heavy influence on selection practices to include online cognitive tests, incorporation of social media into the hiring process, video-based methods for interviewing potential talent, and enablement of alternative work practices in organizations. These new approaches continue to remain top of mind for I-Os as well as business leaders. Example SIOP 2017 sessions explicating the disruptive influence of technology on staffing practices include:

- [“Symposium + Panel Session Combo: Will Technology Make Assessment Obsolete?”](#) (alternative session type), submitted by **Eric Sydel**
- [“Social Media for Employment Decisions: The Good, Bad, and Ugly”](#) (panel discussion), submitted by **Christopher Hartwell**
- [“Caught on Video: Best Practices in One-Way Video Interviewing”](#) (panel discussion), submitted by **Daniel Schmerling**
- [“Preferences for Nonstandard Work: An Exploratory Investigation”](#) (poster), submitted by **Kang Yang Trevor Yu**

3. **Groups/Teams** - Of the 73 times Groups/Teams was listed as a content area (35 primary, 38 secondary), 4 were specific to groups and teams. Virtual team dynamics continues to take on new forms with the addition of new technologies for messaging, sharing, meeting, connecting, and collaborating. With our technology platforms adapting to these mechanisms, we are still seeing a significant amount of research on trust, approaches to building a strong team dynamic, and perceptions around how we represent ourselves in these environments. The four SIOP 2017 sessions linking Groups/Teams and Technology are:

- [“Portrayed Competence and Cohesion in Virtual MTS Assembly: How Competent Do We Appear?”](#) (poster), submitted by **Benjamin Jones**

- [“Media, Communication, and Trust: A Virtual Teams Conundrum”](#) (poster), submitted by **Scott Cassidy**
  - [“To Meet or Not to Meet: Preference for Electronic Communication”](#) (poster), submitted by **Britany Telford**
  - [“Coworker Relationships Altered by Social Media: Posts, Pokes, and Problems”](#) (poster), submitted by **Courtney Bryant**
4. **Teaching I-O Psychology/Student Affiliate Issues/Professional Development:** Of the 31 times this was listed as a content area (21 primary; 10 secondary), 4 were associated with technology. Building our I-O brand and network remains top of mind for our field and shows up in our session list this year. Additionally, professional development topics largely focus on social media, skill gaps, and internship opportunities. The four SIOP 2017 sessions linking this content area with technology are:
- [“The I-O of the Future: Identifying and Closing Skill Gaps”](#) (panel), submitted by **Olivia Reinecke**
  - [“Classroom Gamification: The Impact of Gamified Quizzes on Student Learning”](#) (poster), submitted by **Lena-Alyeska Huebner**
  - [“From Likes to Impact: The Payoffs of Social Media Involvement”](#) (panel), submitted by **Evan Sinar**
  - [“From the Outside, In: Technology’s Influence on I-O Psychology”](#) (alternative session type), submitted by **Aarti Shyamsunder**
5. **Research Methodology:** Of the 59 times (25 primary; 34 secondary) Research Methodology was listed as a content area, 3 were associated with technology. New analyses capabilities are being developed to change the way I-O psychologists conduct their research, including automated data collection methods and the use of crowdsourcing techniques for data gathering. The three SIOP 2017 sessions linking Research Methods and Technology are:
- [“Panel + Breakout Combo Session: Sense Making of Wearable Sensors”](#) (alternative session type), submitted by **Scott Tonidandel**
  - [“Automated Data Collection: An Introduction to Web Scraping With Python”](#) (master tutorial), submitted by **Jorge Ivan Hernandez**
  - [“How Pay Affects Performance and Retention in Longitudinal Crowdsourced Research”](#) (poster), submitted by **Elena Auer**

### Content Areas Least Linked With Technology

Next we turn to the topical flipside: content areas that were rarely or never paired with technology. This analysis answers a different question than discussed above. The five content areas above are those with the heaviest saturation of technology: topics where technology’s integral role is well-established and under heavy scrutiny by researchers and practitioners. In contrast, those below represent the most notable disconnects between overall content area engagement by I-O psychologists and recognition/exploration of technology as a modality or enabler of these topics.

Our criteria for this ranked list of technology-bereft topics were to first limit to content areas with at least 30 sessions on the program overall and second, with the lowest ratio of technology-paired sessions to total sessions for that content area (for example, Leadership was listed as a primary content area 68 times yet only paired with technology once). These criteria produced five content areas with a low or nonexistent technology saturation. We’ll discuss each below with an eye toward future research

questions to explore the possible technology connections:

- **Inclusion/Diversity:** The most prevalent primary content area on the entire SIOP 2017 program (84 sessions) but never paired with technology (notably, though, there are several STEM-related sections on the program; likely not linked to technology because they cover additional fields as well). Given the growth of Diversity & Inclusion (D&I) programs and employee resource groups (ERGs) being established to ensure companies are diversifying their talent, we believe there are more research questions we need to be asking, including:
  - What technologies are in use to facilitate the incorporation of diverse backgrounds and perspectives into business decisions?
  - What hiring technologies and measurement mechanics are being leveraged to ensure diverse candidate pools or promotion tracks?
  - What type of virtual groups or interactions are being established in companies to support employee resource groups and minorities?
- **Counterproductive Behavior/Workplace Deviance:** This primary content area included 41 sessions total but, again, never paired with technology. Given the extent of resources being put into place at organizations to raise warning flags for and avoid these damaging behaviors, potential research questions to extend the discussion include:
  - How is technology reshaping the market of electronic performance monitoring and tracking workplace deviance? Will these technologies redefine the measurement space for CWB and deviance constructs?
  - What are the implications of and organizational responses to new forms of technology-aided deviance, such as hacking, cyberbullying, and cyberloafing?
  - How do technology-related security risks and associated stigmas fit within or extend the concepts of CWB and deviance (for example, being the person in the office whose carelessness led to a virus unleashed to the corporate network)?
- **Leadership:** The second most-frequent primary content area overall (68 sessions) was only paired once with technology as a secondary content area: the session ["Science-Practice Exchange: Ready or Not... Technology's Implications for Leadership Development"](#) (alternative session type) submitted by **Nathan Wiita**. With the new technologies and efforts to uplevel leadership, our questions on links between technology and leadership include:
  - What are the new skills required for leaders in a technology-centric business environment? How do these span personal digital literacy for leaders and their capability in leveraging technology to manage employees?
  - Is there a need for leaders to become aware and take on ownership of data gathered about and from their employees via Internet of Things devices?
  - What are the usage, impact, and measurement properties of the vast array of technologies promoted to enhance leadership (e.g., apps and social media sites)?
- **Occupational Health/Safety/Stress & Strain/Aging** - With a very small number of such sessions linked to technology (the only exception: ["Pressure to Remain Available to Work: Implications for Psychological Detachment"](#) (poster), submitted by **Rachel Omansky**), additional research questions include:
  - What is the strain of technology use and its effects on health?
  - What is technology's role in tracking and enhancing employee safety?
  - How are organizations across industries balancing the influx of technology with an aging

and multigenerational workforce?

- **Job Attitudes/Engagement** - This content area had 38 sessions accepted, with one listing technology as a secondary content area: [“Examining the Relationship Between Engagement and Technology-Assisted Supplemental Work”](#) (poster), submitted by **Archana Manapragada**. Given continued organizational investment in employee engagement, potential research questions include:
  - How should employee reactions to/attitudes about technology in the workplace be captured in satisfaction/commitment/engagement measures?
  - What are the benefits and risks of technology-enabled “pulse survey” approaches to measuring employee attitudes?
  - How reliable are “digital breadcrumb” indices of employee attitudes (for example, derived from intranet/social media activity)?

Overall, although not all I-O research areas should and will be linked to technology, we believe there are significant opportunities to expand the number and diversity of studies on workplace technology. We recommend that researchers “mash up” content areas to derive unique interconnections involving technology. We would expect that even unexpected connections between technology and other content areas will be at best slightly ahead of their actual appearance in the workplace, such is the omnipresent influence of technology. Additionally, as technology serves more and more as an enabler of standard processes, so where is the evidence for the incremental impact stemming from its use, in comparison to traditional approaches? Last, how do we close (and keep closed) our own knowledge gaps about the various intersections between technology and human behavior?

### **Recommended SIOP 2017 Technology Sessions**

Although there are many sessions with a formal technology mapping today, we expect the trend line to continue for more technology-linked sessions overall. In particular, we anticipate more instances of technology as a primary content area, indicative of its use not just as a delivery modality but as an integral component of workplace practices and employee experiences. But for SIOP 2017, where to start?

Below we propose a set of sessions we view as representative of and building on the trends above. Although our orientation as authors of a technology-focused column is to advocate for attendance at any and all technology sessions at the conference, we overlay an additional consideration for the subset of sessions listed below. These sessions appear (based on currently available information as represented in the SIOP conference program) to provide broadly applicable summative advice and sense-making structures to notably advance discussions about new and rapidly changing workplace technologies.

- [“Creating Three-Dimensional Task–Technology Fit Scales”](#) (poster), submitted by **Matt Howard**
- [“From the Outside, In: Technology’s Influence on I-O Psychology”](#) (alternative session type), submitted by **Aarti Shyamsunder**
- [“I-O Psychology in an IT World”](#) (panel discussion), submitted by **Kelley Krokos**
- [“Opportunities and Challenges in Electronic Human Resource Management”](#) (alternative session type), submitted by **Stanley Gully**
- [“Panel + Breakout Combo Session: Sense Making of Wearable Sensors”](#) (alternative session type), submitted by **Scott Tonidandel**
- [“Personality, Responsiveness, and Performance in Technology-Enabled Work Environments”](#) (poster), submitted by
- [“Science-Practice Exchange: Ready or Not... Technology’s Implications for Leadership](#)

- [Development](#)” (alternative session type), submitted by **Nathan Wiita**
- [“Workplace Automation and the Future of I-O Psychology”](#) (panel discussion), submitted by **Jenna Shapiro**

What sessions are you attending at SIOP 2017? Be sure to tweet during the conference the hashtags #SIOP17 and #IOPsych.

### Questions to Ask Presenters/Panelists to Advance the Technology Dialogue

Based on the findings and considerations above, we propose a few questions to ask presenters as you attend technology-related sessions at SIOP 2017:

- How can I-O psychologists gain and maintain up-to-date knowledge of the technologies discussed in your session?
- What types of organizations are better (or worse) testing grounds for the technologies you used?
- What do you see as the most underresearched areas of workplace technology?
- Who are the key partners, and what are the key skills, that I-O psychologists must have to successfully conduct technology research?
  - Are technology-based workplace tools subject to different—either higher or lower—expectations compared to more traditional methods, for example, usability, impact, sustainability?
  - What theories and taxonomies have you found most useful—or most lacking—in researching and sense-making for technology at work?
- How can I-O psychologists enhance the visibility and influence of their work on technology topics, to maximize use within organizations?

Also, be sure to keep an eye out for our next column. Whereas this edition is a look ahead, our next will be a look back; a review of a curated set of the technology topics—and summary insights—from this year’s conference. We’ll review useful takeaways from technology sessions at the Orlando conference, and we’ll be seeking and sharing input from presenters at several key technology sessions such as those above.

**We look forward to seeing you in Orlando!**



Contact us on LinkedIn: [Tiffany Poeppelman](#) & [Evan Sinar](#)



Contact us on Twitter: [@TRPoeppelman](#), & [@EvanSinar](#)

### Reference

Blacksmith, N., & Poeppelman, T. (2015). A year in review: #SIOP15 technology & social media highlights! *The Industrial-Organizational Psychologist*, 53(1), 74-82.



## Your Guide to Reproducible Research (RR) at SIOP 2017

Zack Horn, Rob Stilson, and Daly Vaughn

The future has arrived for Reproducible Research (RR) at SIOP 2017, with over 60 presentations and a dedicated Saturday RR track (in room Asia 4). This open-source approach to research has caught the tech world and scientific communities by storm, and I-O psychology is quickly catching up! In poster and non-poster presentations alike, researchers across SIOP 2017 are taking a community-oriented approach to **advancing robust and reliable research in I-O**. So before you finalize your conference schedule, be sure to [scan the program](#) for sessions containing the “RR” logo, as at least one presenter in that session is sharing their data, analysis code, or both—for YOU to use!

### Why Is RR at SIOP?

Although our community has shown great excitement about bringing RR to I-O, we know that many questions remain—and we would like to address the most common questions here. In short, the ability to replicate studies, reproduce analyses, and share methodologies as a community will help us **accelerate the evolution of our science**. With the widespread use of open source coding languages such as R and Python, sharing analysis code has become the norm in many analytical sciences. We also understand that as a newly organized initiative at SIOP, there many questions about our community’s norms and expectations for sharing research. To this end, we have created an **RR Hub on SIOP.org** ([www.siop.org/rr](http://www.siop.org/rr)) to begin answering many of these questions and provide resources for best practices.

### Quickly, What Is RR?

Reproducible research simply refers to the process of documenting the steps taken to conduct a research study so that others can better understand/reuse selected research methods and replicate findings (if data is made available). Researchers are by NO means asked or encouraged to share anything proprietary. Confidential data or proprietary algorithms, for example, are not expected to be shared with the larger community. Data and analysis code can easily be anonymized, however, so that others can reuse methodologies and practice on “mock” data sets. Whether for replication or reuse, participating in RR is an easy way to foster a culture of robust and reliable research across our science.

### How Do I Get Started?

The recipe is easy: Prepare your research documents, host them online, and share the link to those documents for others to use. First, visit [SIOP’s RR Hub](#) to learn some best practices for RR in I-O, and find links to materials shared by RR presenters at SIOP 2017. Second, [this post on SimplyStatistics.org](#) gives a great example of how researchers in any field can prepare share research with the world, but of course it’s up to you to determine where and how much to share. A few examples of file sharing providers include [GitHub](#) (recommended), [Google Drive](#), [Dropbox](#), [figshare](#), [dryad](#), [zenodo](#), and [Academic Torrents](#). For those who want to dig in further, the Center for Open Science (COS) provides the [Transparency and Openness Promotion \(TOP\) Guidelines](#), which discuss three levels of transparency across eight categories.

### Where’s This Headed?

We’re just beginning to solidify some best practices for RR in I-O, but we already have great [resources for getting started with RR](#) as well as guidelines for [presenting RR at SIOP Conferences](#). Moving forward, the pursuit of RR in I-O will be part of SIOP’s new *Robust and Reliable Research* initiative, enabling a more strategic approach to formalizing norms and expectations for RR in I-O psychology. The introduction of RR was a surprise to many SIOP members in this year’s Call for Proposals, but RR is forecasted to become mainstream in I-O over the next couple of years. Until then, enjoy the RR presentations in Orlando and make great use of those shared materials!

## **Don't Skip the Placement Center: The Best Marketplace for I-O Talent**

**Lorin Mueller, Federation of State Boards of Physical Therapy  
Kathakali Sircar, CSRA Inc.**

The SIOP Placement Center has been a popular resource at the annual conference since 1993. Although it initially started as a service connecting employers to prospective candidates, the Placement Center has quickly evolved into offering many additional supporting services for job seekers and employers alike. This year's Placement Center is no exception, with several innovative events designed to help job seekers and employers maximize their conference experience.

Lorin Mueller and Kathakali (Kat) Sircar, the current cochairs of the Placement Center, had initially met through the Placement Center in 2012 when Lorin, Managing Director of Assessment at Federation of State Boards of Physical Therapy (FSBPT), interviewed Kat for a Research Associate position. Lorin had posted two job openings through the Placement Center and Kat was one of the two FSBPT recruits that year, both of whom had recently graduated from I-O training programs and were seeking employment. Lorin states "One of the most overlooked aspects of the Placement Center is the ability for smaller employers to promote their opportunities and employer brand. I would have never met Kat if it weren't for the Placement Center." In fact, in addition to larger companies that use the Placement Center for recruitment, the service is extremely helpful for many smaller employers in accessing a large I-O audience to promote various opportunities.

Over the years, the Placement Center has grown to offer many unique services that assist job seekers in preparing for and seeking employment opportunities. The Mock Interview Program offers an opportunity for interested candidates to undergo practice interviews where they receive customized performance feedback from seasoned professionals. **David O'Connell**, former Placement Center participant, states "After scheduling interviews for the conference weekend, I elected to sign up for the Placement Center's Mock Interview Program. I was able to meet with a professor at the conference who provided feedback and encouragement in preparation for the real interviews."

Additional Placement Center events taking place at the Annual Conference include the Open House and Internship Event. The Placement Center Open House provides an opportunity for job seekers and employers to network outside of the formal interview setting. During this upcoming SIOP conference, the Placement Center, in collaboration with the Education and Training Committee, will also host an Internship Event: a unique hybrid event consisting of a panel discussion regarding the ins and outs of internships, that is, how to secure such positions and how to make it a successful experience for both the intern and company. The discussion will be followed by the "guided" networking event to allow for one-on-one interactions with audience members. All three such additional Placement Center initiatives have received extremely positive feedback from job seekers and employers alike in the value such services bring to the conference and I-O community. The following information provides dates, times, and location of the additional services for the April 2017 SIOP Conference.

Mock Interview Service: To be set up prior to Annual Conference.

Placement Center Open House:

Date: Thursday, April 27, 2017

Time: 10am-11am

Location: Mockingbird (Swan Hotel)



Placement Center/Education and Training Committee Internship Event

Date: Thursday, April 27, 2017

Time: 12-2pm

Location: Mockingbird (Swan Hotel)

The main draw to the Placement Center is still the ability for employers and job seekers to meet face-to-face after connecting through the online job board. Several employers make regular use of the SIOP Placement Center as a cornerstone of their recruiting efforts. "SIOP's Placement Center is an instrumental part of our process," says **Cheryl Hendrickson**, Managing Research Director at the American Institutes for Research (AIR), "We know we can find high quality applicants at SIOP. Each year we structure our hiring around the opportunity to meet applicants in person at the Placement Center." Pam Danas of DDI notes the Placement Center can be a great opportunity to allow job seekers to get to know employers, "It's always productive time well spent, getting to know the talented individuals that participate, sharing more about DDI and exploring possible alignment with our business, our culture, and our current needs." Both DDI and AIR have been participating in the Placement Center for over 10 years.

One might think that the Placement Center is a better value for employers who hire a lot of people, and job seekers who want to work for big consulting firms. That's not entirely true; it can be a great opportunity for employers who have intermittent staffing needs to gain access to a high quality applicant pool for a minimal recruitment cost. "It's a bargain," says **Alex Alonso**, SHRM's Senior Vice President for Knowledge Development & Certification. "As an employer, I am grateful that SIOP has always put its mission of serving members above all other factors."

Job seekers also speak highly about the Placement Center, with its top benefits including opportunities to receive direct exposure and contact to employers, networking opportunities, and mock interviews. Former Placement Center participant, **Kaitlyn Mikush** attests to the networking benefits of the Placement Center, "While in graduate school, I was limited to networking with my alumni network and cohort. The Placement Center enabled me to gain access to opportunities outside of my small professional network. I was able to obtain my first job out of graduate school utilizing the Placement Center. Aside from gaining my first professional I-O job, I was also able to network with additional mentors with whom I still remain in contact. The Placement Center process was efficient, convenient, and very beneficial."

What is the best advice for job-seekers looking to participate in the Placement Center during the upcoming conference? Former participants often state the importance of being proactive and initiating contact with employers to schedule interviews beforehand. A recent survey showed that 40% of organizations had already begun conducting interviews prior to the conference. Because most employers search for candidates prior to the conference, candidates should sign up early and post their resumé on the web site. The Placement Center registration can either be added at the time of conference registration, or candidates and employers can add the registration afterwards.

For more information the Placement Center registration, fees, and hours of operation, please visit: <http://www.siop.org/Conferences/17con/regbk/placement.aspx>

Please contact [Placement@siop.org](mailto:Placement@siop.org) for general assistance.

**Paul W. Thayer Obituary**  
**Michael A. Campion**

Dr. Paul W. Thayer was an industrial and organizational psychologist probably most distinguished by his professional service. He was a fellow of the American Psychological Association (APA), American Psychological Society (APS), and Society for Industrial and Organizational Psychology (SIOP). He received multiple awards for his service, including SIOP's Distinguished Professional Contributions Award and its Distinguished Service Award, as well as the APA Award for Distinguished Service to Psychological Science.

For APA, he served on the APA Insurance Trust (founding member), Council of Representatives, Membership Committee, Convention Affairs Committee, and Policy and Planning Board (as chair). For APS, he was treasurer, chair of the Finance Committee, and a Founding Fellow. For SIOP, he served in ALL elected offices, including president (in 1976–1977), and was currently serving his 20<sup>th</sup> year on the SIOP Foundation Board of Trustees. He served as a volunteer to all these organizations for an astounding total of 110 years.

He has BS degrees from Penn State and Kings Point, and a PhD from Ohio State (under Harold Burt). He taught for 2 years at the University of Pennsylvania and then joined the Life Insurance Marketing and Research Association where he started as a training researcher and rose to VP Research and Senior VP over a 21-year period. He then went to North Carolina State in 1977 where he was department head of Psychology for 16 years. He retired in 1993. He also consulted with many businesses, government agencies, and the U.S. military.

His most recognized scientific contribution was in industrial training. He coauthored (with William McGehee) the first scientific book on the topic, *Training in Business and Industry*, in 1961, which is considered a classic in the field. He also made meaningful contributions to research and practice in areas such as selection interviews, biographical predictors of job performance, career development guidance, programmed learning, job design, equal employment, and many other topics. He has many scientific publications in top journals and has given numerous papers and presentations at all the professional conferences and many universities. He also served on the editorial board of *Personnel Psychology* for 30 years and on its book review Panel for 10.

On a less tangible level, Paul Thayer was distinguished by his contributions to strengthening the social network of the profession of psychology. He was an avid attendee at conferences and knew everyone it seemed, which he used to help people meet and exchange knowledge. He took the role of mentoring seriously, substantially influencing the lives of his many protégés. As examples, one of his former students (Leslie W. Joyce) established a fund that recognizes their mentoring relationship that yields a doctoral fellowship of \$10,000 per year, and I was also a former student who was so inspired by Paul's guidance that I devoted my career to scientific publications and professional service to SIOP (e.g., SIOP president in 1995–1996). More broadly, Paul adopted the role of shepherd to the profession by continuing to guide it with a gentle but persistent hand through involvement in professional service for 6 decades (1956–2017).

Finally, in terms of his background, he was born on July 18, 1927 and died on January 25, 2017, at the age of 89. He was married for 64 years to his beloved wife Bjorg (deceased in 2015), who was also a psychologist. They had three children (Scott, Lisa, and Chris) and six grandchildren.

Paul had a long, happy, and successful life, which anyone should respect, but he should be remembered most for how he stands out for serving the profession of psychology. His wisdom and wry sense of humor are also well known and show delightfully in his 1977 essay with Bill McGehee.

A more detailed description of Paul Thayer's life and career can be found in his autobiography written for the SIOP task force on history at <http://www.siop.org/Presidents/Thayer.aspx>.

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### The Research Integrity Issue: Exploratory or Confirmation Stage?

What is the disconnect between the issues of List and McDaniel's (2016) and Locke (2016)? I was instructed that scientific research in our area can be described as in an exploratory stage, and the goal is identifying and measuring variables of potential interest. After a manageable number of correlations can be summarized by competitive theories, testable and comparable hypotheses are derived and subjected to plausible rejection. Those surviving rigorous tests to disconfirm are tentatively accepted as useful (Meehl, 1977). The initial stage has no rules, but the suggestion is that one should functionally use data and imagination and always follow orderly correlations (Locke, 2007, 2009; Harriman, 2010).

Locke states a preference for reporting the complex exploratory process over the logical and readable style of current research journals. He sees a need for an inductive in addition to a deductive story. In my experience, we work in areas containing too many plausible variables to sort out by deductive logic and must find ways to reduce them to a few that may be described deductively (Fisher & Aguinis, 2017). This process of identifying relationships and imagining how it works is the inductive process and the rigorous testing of ideas derived from a theoretical construct is the deductive.

Locke was successful in building a deductive theory that describes how follower performance is influenced by accepting set hard and specific goals, e.g., winning the NFL Super Bowl. It works and I've seen the raw data collected by others. The process remains as to identifying a dependable process for accomplishing follower acceptance. Simply ordering followers to do this does not work in most Western work places. However, according to the deductive leadership theory of leader-member exchange of unique strategic alliance (LMX-USA) followers in teams with LMX-USAs enthusiastically set specific hard goals or high goals one year and low goals the next (Graen, 2015; Graen & Canedo, 2017). Locke and I spent most of our entire career hunting for a deductive theory based on working in an exploratory stage and not a confirmatory one. The inductive process that worked in these two cases was to immerse themselves in the active process and asked themselves what happened while they were watching and interrogating participants. After a series of progressive approximating studies in which they repeatedly asked what conditions could cause this process, the pieces were put together successfully.

Locke is correct when he state that selecting a set of measures in an empirical investigation must be based on some thinking about a limited set of related variables that may be correlated beyond error. In

sum, we are in the business of producing promising correlations that may have meaning in a deductive theory. At our stage of exploration, no deductive theory is required to make a study publishable but for the sake of effective communications, describing our stumbling in the dark is only of interest to ourselves. If we desire to make our studies seem interesting for the readership, the present style should be retained.

**George Graen**

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### Highlights of SIOP's Programming at the 2017 APA Convention

**Mindy Shoss**  
**2017 APA Program Chair**

SIOP's APA Committee is pleased to announce a fantastic program for the 2017 APA Convention! We have a wide range of programming (invited addresses, symposiums, panel discussions, conversation hours, skill building sessions, etc.) offered by researchers and practitioners from around the world. Here are some highlights:

- **Addresses on current challenges for I-O research and practice:**
  - Open Science, Open Practice: Implications for Industrial-Organizational Psychology and Beyond (**Fred Oswald**)
  - Work, Psychology, and Sustainable Development (**Lori Foster**)
  - Ready or Not, Here They Come! Understanding Today's Young Employees (**Georgia Chao**)
  - Harnessing the Potential of an Aging Workforce (**Barbara Fritzsche**)
- **Symposia on cutting edge issues in I-O psychology:**
  - Shifting Organizational Culture: Moving Toward the Use of Data-Informed Evidence-Based Care (Co-chairs: William Shennum & Isis Orozco)

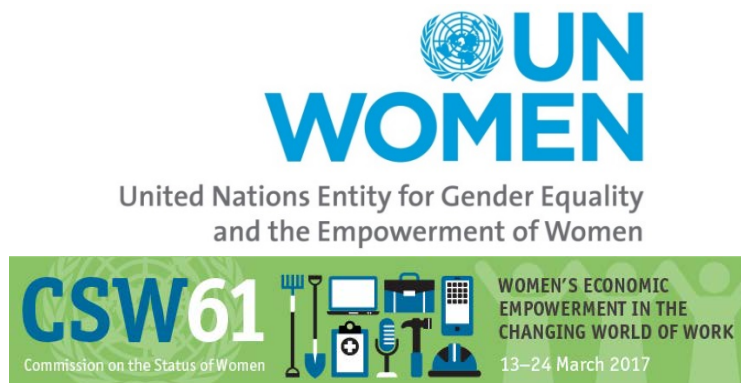
- Data-Driven I-O Ammo for Transitioning Military Veterans (Chair: **Peter Reiley**)
- **Panel discussion on reporting compensation data** (Joanna Colosimo, David Cohen, and David Fortney)
- **Paper sessions** on occupational health psychology, organizational interventions, and individual differences
- **A Q&A Session with Division 14/SIOP council representatives** to learn about happenings at APA and SIOP (**Deirdre Knapp**, Georgia Chao, **Gary Latham**, **Stephen Stark**)
- **A skill-building session on creating datasets from Twitter and Facebook** (**Richard Landers**)
- **Two poster sessions** on occupational health and leadership
- **A conversation hour** exploring “Psychologist, I-O Psychologist, or HR Professional: Who Am I?” (**Alexander Alonso** and **Elliot Lasson**)
- **A reception co-hosted with the Personnel Testing Council of Metropolitan Washington (PTCMW)**
- And more!

Don't miss out! **APA registration opens April 17**. The convention takes place Aug. 3-6, 2017 in Washington, D.C.

Also, congratulations to the incoming 2018 APA Chair, **C. Allen Gorman**!

#### UN Initiatives for Women and the SIOP UN Committee

**Lise Saari**, New York University & Baruch College  
**Lori Foster**, North Carolina State University & University of Cape Town  
**John C. Scott**, APTMetrics  
**Deborah Rupp**, Purdue University  
**Mathian Osicki**, IBM  
**Kristin Charles**, Amazon  
**Drew Mallory**, Purdue University  
**Dan Maday**, Roosevelt University



The United Nations has focused on important issues related to women for over 60 years, and a UN entity, UN Women, focuses exclusively on issues for women and girls. These issues are extensive and include themes such as equal access to education, ending all violence and discrimination, decent work, and economic empowerment for women globally. High-level meetings of the Commission on the Status

of Women are held annually with UN member states from around the world to set goals and assess progress. Many NGOs at the United Nations assist with these initiatives.

UN initiatives for women are also very much a part of the UN's recently announced Sustainable Development Goals (SDGs). Empowerment of women and girls is seen as an essential part of the SDGs, and an overarching SDG goal is to *end all gender inequality globally by 2030*. UN Women themes aligned with the SDGs include *50/50 by 2030* and *Empower Women, Empower Humanity*.

Related to these efforts at the United Nations, the field of I-O psychology has, for decades, been at the forefront of research and science-based practice on understanding and addressing issues related to women and work. Although much of this focus has been on corporations and in western business settings, there are many aspects of I-O research and practice that can be extended to assist with broader societal issues related to women and work globally.

A number of SIOP UN Committee efforts at the UN have focused on important issues related to women at work. These include SIOP UN committee members leading initiatives, teaming with other SIOP members, collaborating with other psychological disciplines, and working with other NGOs and UN areas that are not psychologically based but who may benefit from our expertise. Below are a few examples of these efforts.

One area of focus for the SIOP UN Committee related to women's initiatives is to submit panel presentations for the annual Commission on the Status of Women (CSW). Last year's panel was the first one that SIOP conducted at CSW. It was an extension of a SIOP conference session on how I-O expertise could help with UN initiatives for women. The theme of the 2017 CSW is: *"Women's Economic Empowerment in the Changing World of Work."* Like last year, a panel of I-O experts on women and leadership will be presenting as a parallel session. SIOP UN Committee member Lise Saari has led these panels along with SIOP members **Karen Lyness, Katina Sawyer, Virginia Schein, and Anna Marie Valerio** as expert panel members. Information on the UN Commission on the Status of Women can be found here: <http://www.unwomen.org/en/csw/csw61-2017>

Another contribution by the SIOP UN Committee is to submit formal written statements to upcoming Commission on the Status of Women meetings. Written statements have been submitted the last several years with SIOP UN members collaborating with other psychological disciplines at the UN. One statement was led by **Mary O'Neill Berry**, a SIOP member with the NGO International Association of Applied Psychology, along with Lise Saari, and with Karen Lyness contributing.

The SIOP UN committee has also made contributions by becoming a member of other NGOs that are not psychologically based but that could benefit from our expertise. By joining an NGO focused solely on women, the SIOP UN Committee has been able to add I-O psychology voice to issues. Examples include providing insights on topics related to women at work and participating in efforts such as the Convention on the Elimination of All Forms of Discrimination Against Women.

Another focus area of the SIOP UN Committee is working directly with UN staff to help them see the advantages of psychological insights. For example, Lori Foster of the SIOP UN Committee, along with **Maya Shankar**, a SIOP member, spearheaded an initiative at the UN to make the case that behavioral insights should be part of UN efforts. The report on this effort highlights a case study on gender equality with psychological insights and measurements. The report can be found here:

<http://www.undp.org/content/undp/en/home/librarypage/development-impact/behavioural-insights-at-the-united-nations--achieving-agenda-203.html>

For more information on UN Women, please see <http://www.unwomen.org/en>. There are also opportunities to work directly with UN Women as an expert to assist on their initiatives. The following website allows experts on gender issues to signal their interest in collaborating with UN Women to achieve gender equality around the world: <http://unwomen.unssc.org/users/registerExpert>

Although I-O psychology influence at the UN on issues related to women is still in its formative stages, the hope is that our collective efforts will help increase awareness and understanding of where the field of I-O psychology can help. The ultimate goal is to have I-O psychology help inform, shape, support, and address UN initiatives related to women and work.

### **APA Council of Representatives Report**

**Deirdre Knapp, Stephen Stark, Gary Latham, and Deborah Whetzel**

The APA Council of Representatives (COR) meets twice per year, with the most recent meeting being held on February 24-25, 2017 in Washington DC. Deborah Whetzel substituted for **Georgia Chao** who was unable to attend. This brief article highlights some aspects of the meeting agenda. A fuller set of meeting minutes will be available on the APA website and the entire Council agenda book is located at <http://www.apa.org/about/governance/bdcmte/secure/agenda-books/index.aspx>

Dr. Antonio Puente, APA President, chaired the meeting with humor and a clear sense of moving APA forward. Dr. Cynthia Belar, the interim APA CEO, also gave remarks that were helpful for framing the mission and goals of APA, as well as providing perspective on the challenges APA has been facing in recent years. Her remarks can be found [here](#).

Last year, Council established several work groups to recommend improvements to how APA functions as an organization. These work groups are in various stages of completing their work, with proposed policy and procedural changes coming before Council in both the February and August 2017 meetings. In February, Council voted to adopt a new set of Conflict of Interest Principles that will apply to any person serving on an APA task force, work group, board, committee, or the Council of Representatives. Council also approved recommendations related to selecting members for ad hoc groups (e.g., task forces) and steps to help ensure civility in discourse among Council members. Recommendations from work groups on organizational policies and procedures, ethics processes, and diversity will be considered at the August meeting.

Financially, APA has had some significant challenges. A projected \$8M operating deficit in 2016 was halved through serious budget cutbacks, as well as greater than expected income from publications sales and a large insurance settlement. A \$4M deficit projected for 2017 notwithstanding, APA's financial condition is still strong, owing in part to lucrative real estate and investment holdings. Council approved forwarding to the membership two sets of bylaws amendments. One set of amendments that Council voted on would ensure at least one seat on Council for each division and state, provincial and territorial psychological association. The other set of amendments updates descriptions of the Board of Directors leadership roles and responsibilities to comply with current IRS requirements. Another provision of this section of the bylaws requires that the CEO be an APA member. This requirement arguably unduly limits the pool of suitable candidates for this demanding role.



Although the timing was not right to suggest another bylaws change at this meeting, we are planning to introduce the idea as a new business item at a later date.

Dr. Kate Brown briefed the COR on the APA Practice Organization (APAPO). Whereas APA represents the interests of psychology, APAPO represents the interests of psychologists. Any APA member can join APAPO by paying additional dues, but their agenda is devoted entirely to the needs of mental health care providers. Deirdre spoke with Dr. Brown following her presentation and remarked on the exclusive focus on clinician needs. Dr. Brown indicated that APAPO is interested in broadening the lens with which they represent the practice of psychology and they plan to reach out to divisions like ours in the future. That would be a welcome change, particularly given that APAPO is such a large and public face of psychology to legislators and the public.

Finally, APA Council members are being asked to generate sweeping topics that could form the basis of APA's agenda over the next 3–5 years. Your Council representatives are proactively working to ensure I-O has visibility in this agenda. We welcome your questions and suggestions related to APA at any time.

**Membership Milestones**  
**Compiled by Jayne Tegge, Membership Services Specialist;**  
**Stephany Below, Communications Manager;**  
**and Clif Boutelle, SIOP Public Relations**

Membership Milestones is devoted to welcoming the newest SIOP members and recognizing long-time members. Each column will list the professional SIOP members who have joined the Society since the previous issue as well as recognize members who have recently upgraded their membership. We will also recognize the newest additions to SIOP's Sterling Circle. Click the links below to go directly to a list or continue reading to learn more about the new SIOP Sterling Circle!

[New Sterling Circle Members](#)

[New SIOP Members/Upgrading Members](#)



**SIOP Initiates Sterling Circle to Recognize Long-Time Members**

Members are the heart and soul of SIOP and are greatly appreciated for their interest and contributions. Many members—nearly 800—have

been with the Society for 25 years or more. To recognize the contributions and loyalty of these dedicated members, SIOP has developed a new initiative called the Sterling Circle. Sterling Circle members will be honored in several ways and can be identified at SIOP events with a special ribbon on their badges. **Learn more about the Sterling Circle [here!](#)**

Following is a list of SIOP's newest Sterling Circle Members\*:

H. Ted Ballard	Miriam Erez	Bruce Moore
Winston Bennett	Martin Evans	Kevin Nilan
Rabi Bhagat	Jeffrey Facticeau	Caroline Pike
Steven Billings	Martin Greller	Christopher Rotolo
Jeanne Brett	Sigrid Gustafson	Gerry Stern
James Caplan	Theodore Hayes	Thomas Tyler
Gabriel Cirino-Gerena	James Herndon	
Marnie Crawford	Sylvia Joure	

**Sterling Circle Speaks**





**Leslie Joyce**, EVP and Chief People Officer, Exide Technologies  
Membership in SIOP has been the cornerstone of my career. It has served as my academic touchstone and my primary professional network. The annual meeting is an opportunity to dive deep in to the topics that matter to me and to

touch base with colleagues I only see once in a while. As a young practitioner it is where I got the assignments that kicked off a terrific career (Thanks to Lance Seberhegen and Pat Hauenstein!). As my career progressed, I got to hire some outstanding interns who have turned into great practitioners (Joanne McInerney, Rob Edwards among others) and made life-long friends like Paul Thayer. SIOP has served as the foundation of a very rewarding career and I appreciate that.



**Caroline L. Pike**, PhD, Organizational Psychologist  
I was encouraged to join SIOP as a graduate student member in 1988--since then, I have worked as a researcher, consultant/practitioner, and executive/administrator in different types of industries and

organizations. SIOP has been an integral part of my career journey. I appreciate that SIOP provides links to relevant research and other professional resources, and serves as a compass for professional/ethical issues and standards of practice. The opportunity to interact with like-minded people who "speak my language" at conferences and events is very rewarding. Most importantly, though, I am personally inspired by the accomplished, dedicated, and fun-loving people who are generally willing to help and support their colleagues, and I appreciate the deep friendships that have grown out of professional collaborations over the years.



**Mike Aamodt**, Principal Consultant, DCI Consulting Group, Inc.

I have been a SIOP member for over 30 years and my career has been greatly enhanced by the knowledge shared by my SIOP colleagues. Perhaps my favorite thing about SIOP is attending the

annual conference where I am quickly reminded how many damn smart people there are in our field. Just when you think you have hit a point in your career where you "have arrived", you run into a doctoral student using statistical terms you never heard of, a masters-level practitioner applying I-O psychology in ways you never imagined, or a professor elegantly explaining a theory that you have mangled for years. No wonder the conference has so many happy hours.



**Nancy Stone**, Professor, Missouri University of Science & Technology

My SIOP membership has allowed me to remain informed about best practices for teaching I-O psychology, to develop networks that have

led to long-term friendships, and to benefit from the wonderful support of my I-O colleagues. As one who spent many of my academic years teaching in an undergraduate program, I found the teaching networks helpful. In addition, my SIOP membership was critical in staying informed about current issues outside my own research areas and getting involved with SIOP committees. In turn, these valuable resources assisted in developing a master's program in I-O. Given the dynamic nature of our work, these resources are invaluable. I continue to meet new people and receive input and guidance from my SIOP colleagues. Finally, SIOP now allows me to give back and help develop the

next generation of I-O psychologists by serving as an Ambassador at the annual SIOP conference.

### New Members

The life blood of any organization lies in attracting new members who bring a special enthusiasm and interest. Membership in SIOP is growing, and we take great pleasure in welcoming our newest members. They comprise a wonderful mix of former Student Affiliates upgrading to full membership and professionals, including those who previously were Associate members and International Affiliates. SIOP looks forward to these new members' participation on committees and conferences as they experience the value of membership in the premier organization for industrial and organizational psychologists. Following is a list of SIOP's newest members\*:

Nataliya Adelson	Jennifer Garrow	Lindsey Lee	Ileana Roiz-Felipe
Reece Akhtar	Eric Garvey	Anurakthi Levesque	Susan Rosengarten
Tanya Andrews	Brett Gatesman	Liwen Liu	Adriane Sanders
Nikita Arun	Scott Gebhardt	Ella Lombardic	Mary Sandin
Bill Baetz	Matthew Glueckert	Charla Long	Amanda Saurin
Lauren Barbato	Aur�lie Graz	Kendra Lyons	Lee Schatsiek
Jeremy Bernerth	Jessica Haig	Tiffany Malloy	Sandra Schneider
Loren Boykoff	Greg Hammond	John Mattscheck	Jerry Seibert
Katie Brandt	Mary Margaret Harris	Anna McFadden	Adam Shoemaker
Michelle Brookens	Pam Haws	Shane McFeely	Buan Sim
Eric Brouillette	Ryan Heint	Bridget McHugh	Carolyn Sklar
Rebecca Buckner	Hannah Helfrich	Kelly McIntyre	Perla Slutzky
Kristin Buechel	Charles Hill	Derek McMullen	Jae Song
Gary Burkholder	Jodi Himelright	Theresa McNelly	Kelly Sorensen
Jonathan Burlison	Hung Hoang	Beth Melillo	Emily Spicer
John Capman	Camille Holt	Ines Meyer	Jessica Stahl
Alison Carr	Morgan Hopkins	Michael Millard	Alina Stamate
Jenna Case-Lee	Jialin Huang	Matthew Milunski	Elizabeth Steinhauser
Richard Chambers	Whitney Huskey	Mark Mincy	Katelyn Stiller
Xinxuan Che	Sarah Iman	Robert Minjock	Catherine St-Sauveur
Vinnie Chi	Cassandra Inosencio	Todd Murphy	Tieranee Sturdivant
Jaime Colon-Basora	Artyom Ivakh	Steve Neumann	Mary Margaret Sudduth
Kellie Conn	Tim Jackson	Jenna Neyman	Amanda Suppanich
Sean Crawford	Suzanne Jafferian	Daniel Neyman	Sarah Sweitzer
Elizabeth Crider	Veronica Jenssen	Laura Olean	Chi Man Tang
Elizabeth Culhane	Elizabeth Johnston	Guven Ordun	Rachel Tenenbaum
Marie De Beer	Sneh Kadakia	Leah Palmer	Omar Tezel
LeAnn DeHoff	Abhinaya Kattuputhur	Johnny Parker	Jared Todisco
Courtney Deyulio	Rangarajan	William Pasmore	John Turner
Toni Dilley	Samuel Kennedy	Ted Paterson	Dina Van Dijk
Nicole Dillner	Kaitlin Kiburz	Vera Payne	Carine Van Enoo
Megan Dudley	Breanne Kindel	Jessica Payne	Peter Vlerick
Tori Ellis	Courtney King	Cherie Pellebon	Melissa Warner
Grace Endres	David Koch	Rebecca Pepper	Meghan Watkins
Ray Enge	Michal Kosinski	Todd Pfenninger	Jennifer Weinberg

Pat Engelhardt	Megan Krueger	Chrystal Pitts	Dianne Weinstein
Fernando Florez	John LaBianca	Steven Ramirez	Ben Wigert
Christina Foster	Traci Lamb	Angela Reaves-Harari	Katherine Williamson
Sarah Freed	Regan Last	Andrew Ritcheson	Elliot Wood
Rebecca Frizzell	Amy Lavoie	Emalynn Robinson	Maira Wright
	Christine Lawrence		Xiangfan Wu

#### **New “Associate Path to Membership” Members\*\***

Sara Henrysson Eidvall

Jerry Seibert

Emily Spicer

\*List compiled from December 1, 2016 to Feb. 28, 2017

\*\*List compiled from December 1, 2016 to Feb. 28, 2017

### **SIOP Members in the News**

#### **Clif Boutelle**

Although the traditional print media remains important to any organization seeking to generate awareness about itself, the Internet has created a whole new arena of outlets that should not be overlooked. In fact, more and more organizations, including SIOP, are developing social media strategies to tell their news.

We also see a growing number of SIOP members writing articles for various publications. Just look at the following listings for evidence of SIOP member-written stories. That’s because Internet sites have spawned a huge number of outlets looking for credible resources, and SIOP members, with their wide variety of workplace related expertise, are welcome contributors to these sites

So, the opportunities for media mentions are expanding and that is good for the field of I-O psychology and SIOP members.

Following are some of the press mentions, including online sites, which have occurred in the past several months:

**Paul Baard** of Fordham University writes a regular column titled “Motivation Matters” for the *New Hampshire Union Leader* and his February 5 article focused on keys to reducing employee turnover. They included making employees feel wanted, providing a work environment in which each employee can excel, and opportunities for workers to offer ideas and suggestions for improving the process involving their jobs. His January 22 column was about ways to get through the winter doldrums.

What do millennials want most in their work? A January 31 article in the *Houston Chronicle* claimed they crave purpose and feedback. **Caitlin Porter** of the University of Houston agreed. Millennials, who grew up with the constant connection and instant response of social media, prefer direct contact with their managers and regular feedback, she said. “They want to know how they’re doing and how they can progress.”

The January 27 issue of *Industrial and Safety and Hygiene News* included a SLOP Administrative Office story about changes in the workplace that quoted **Wendy Bedwell** of the University of South Florida and graduate students **Sarah Frick** and **Keaton Fletcher**. They synthesized several influential theories about teams to develop "The 4 Rs of Team Adaptation." The four steps include recognizing changes within organizations, reframing the team's cognitive approach to a task based on the change, responding to the change by implementing a new approach, and reflecting on the change and how successfully the team was able to adapt. It's a model they say can help diverse organizations effectively adjust to changes.

**Billie Blair**, an organizational psychologist and president and CEO of Change Strategists, an international management consulting firm in Murrieta, CA, was quoted in a January 23 *HRE Online* story that cited a recent survey finding that a majority of professionals prefer promotions over pay raises, but experts differed on that finding. Blair said her experience with larger corporations doesn't reflect the surveys "promotion over pay raise" finding. "I do agree though, that career paths should be devised for professional employees," she says. "We tell our *Fortune* 500 clients that, if they are not developed, professionals [who are costly to recruit and acquire] will leave."

An article describing why good work habits may actually be detrimental was the focus of a January 17 *Fast Company* article that included comments from **Stuart Sidle** of the University of New Haven. It's common for people to rely on their good habits and strengths that have made them successful, he said. "Unfortunately, some of these strengths could derail your career as situations change," because what worked in one position may not work in another. If someone moves from sales into management, for example, the habits they used to help win the sale can harm them in their new management roles, he said.

**Adam Grant** of the University of Pennsylvania was featured on *CNBC* January 17 talking about findings from his popular management philosophy book, "Give and Take." In it he identifies three kinds of employees. Takers approach every situation looking for what's in it for them. Givers approach situations looking to help others. Matchers are willing to help those who help them. To determine the success of the three categories of workers, Grant studied dozens of organizations and found that givers are both the best and worst individual performers, but across the board, givers make an organization stronger. "We have a huge body of evidence looking at the frequency of giving behavior that exists in a team or an organization, and the more often people are helping and sharing their knowledge and providing mentoring, the better organizations do on every metric measured, including higher profits, customer satisfaction, employee retention. Even lower operating expenses," he said. Identifying the givers in your organization might be tricky, though. They are not necessarily the most charming coworkers, he said.

The collection of data is a reality of modern life but the American public when it comes to their own information is not sure whether it is good or bad. **Tara Behrend** of George Washington University talked with *Inverse Science* for a January 16 article on the intersection of psychology and surveillance. "We're in an important period of change right now," she says. "The laws and protections we have developed for citizens, employees, and students are outdated. Pervasive data collection presents a real danger of discrimination, harassment, and just plain bad decisions."

**Ben Dattner** of Dattner Consulting, LLC in New York City wrote an article for the January 16 issue of *Harvard Business Review* about how to turn an interim role into a permanent job. Maintaining the emotions and politics of an interim role while also doing the job can be difficult, he acknowledged. Understanding your situational challenges and opportunities, remaining flexible and positive, and

aligning your accountability with your authority can increase the odds that your interim role will take you where you want to go, he wrote.

Dattner was also quoted in a February 3 *Washington Post* story about how the election results are affecting managers and employees in the workplace. “One of the particular things I am finding is the challenge of separating fact from speculation,” he said. Usually he counsels leaders to inform employees what is known and what is not known but “in the current situation, it’s hard to say that.”

**Gary Latham** of the University of Toronto was a guest on a January 14 *Bloomberg Radio* program about productivity at work. Latham discussed his decades of research into how subtle influences to peoples’ psyches can help get more work done and to be more productive.

Emotional intelligence often can be a more determinant indicator of success in the health care field than professional experience and/or high IQ scores, wrote **Lori LaCivita** of Walden University in the January 5 issue of the *Manchester Guardian*. Health professionals need to be able to treat an array of issues in patients and work with all personality types, she said. Soft skills, or EI, are heavily relied upon in tense situations and to address everyday health issues. The good news is that EI can be enhanced and developed over time and can be highly significant in the development of human potential, teamwork, leadership, stress reduction, creativity and innovation, she said.

**Kenneth Siegel** of leadership consulting firm Impact Group in Potomac Falls, VA was quoted in a January 1 *New York Times* and *Boston Globe* story on beginning the new year by asking for a raise. “You’ve got to go into these discussions with a clear sense that this is something you have earned not a gift from your boss,” he said. “Focus on what you’ve earned not what you deserve.” Set up a specific time to meet with your boss and signal that it will be an important conversation, he added.

For a December story in APA’s *Monitor on Psychology*, **Steve Rogelberg** of the University of North Carolina at Charlotte, **Joseph Allen** of the University of Nebraska at Omaha and **Brenda Fellows** of the University of California offered their thoughts on conducting productive meetings. Allen said arriving late to meeting is irritating to others, and if time is spent updating the latecomers, meetings become less effective and satisfying. Shutting off personal devices is important, said Rogelberg. If people are gravitating to their devices it may be a sign the meeting needs to be more engaging. “Devices are signals,” he added. Avoid tension by being constructive in meetings, advised Fellows. Meetings can unravel when attendees interrupt each other, argue or hold side conversations.

**Sartoris (Tori) Howes** of Portland State University and **Jennifer Bunk** of West Chester (MA) University provided tips for a December 21 *U.S. News & World Report* article about employees whose jobs require them to work on holidays. “Think about the positives,” said Culbertson. Having a job that is helping the family or funding something important is good reason to be grateful. Things could be worse so look for the silver lining. Bunk suggested being flexible. “Just because you are unable to celebrate when the world dictates you celebrate doesn’t mean you can’t share a special moment at a different time or place. Don’t let traditions be a shackle,” she said.

In a Leadership column in the December 19 *Forbes*, **Tomas Chamorro-Premuzic** of Hogan Assessment Systems wrote that leaders are shifting from intuitive to data-driven decisions and that Big Data needs to be supported by theory by what he calls deep data with theory. Explaining the information gained through Big Data is far more valuable, both from a theoretical and practical perspective, he said.

The December 7 *Harvard Business Review* included an article by **Anna Marie Valerio** of Executive Leadership Strategies, LLC in Ridgefield, CT, and **Katina Sawyer** of Villanova University describing their research on men who mentor women. Generally, they wrote, “male champions” have learned that gender inclusiveness means involving *both* men and women in advancing women’s leadership. Some of the key behavioral themes associated with gender inclusive leaders who support women’s career advancement include:

- using their authority to push workplace culture toward gender equality
- thinking of gender inclusiveness as part of effective talent management
- providing gender-aware mentoring and coaching
- practicing other-focused leadership, not self-focused leadership

Writing in the November 30 issue of *Harvard Business Review*, **Sandra Robinson** of the University of British Columbia and **Kiri Schabram** of the University of Washington addressed the issue of “toxic handlers,” --people who voluntarily shoulder the sadness, frustration, bitterness, and anger of coworkers. They offered suggestions that will enable these handlers to still help colleagues while protecting themselves, including learning to say no, letting go of guilt, recruiting others to help colleagues, and taking breaks.

**Christine Porath** of Georgetown University wrote a piece about the importance of civility at work in the November 26 issue of the *Wall Street Journal*. You can lift people up by demonstrating respect and making them feel valued, appreciated, and heard. But when you exhibit uncivil behaviors, from ignoring to belittling to intentionally undermining others, the harm is enormous, she wrote.

American workers are not using all their earned vacation time, according to research by Project Time Off. In a *Cronkite News* story appearing in Arizona Big Media, **Victoria Phillips** of Arizona State University acknowledge that workers not using vacation time raises real concerns and comes at a cost. “We know that if you are not taking a break, your body can’t operate under that stress for too long without there being consequences.”

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